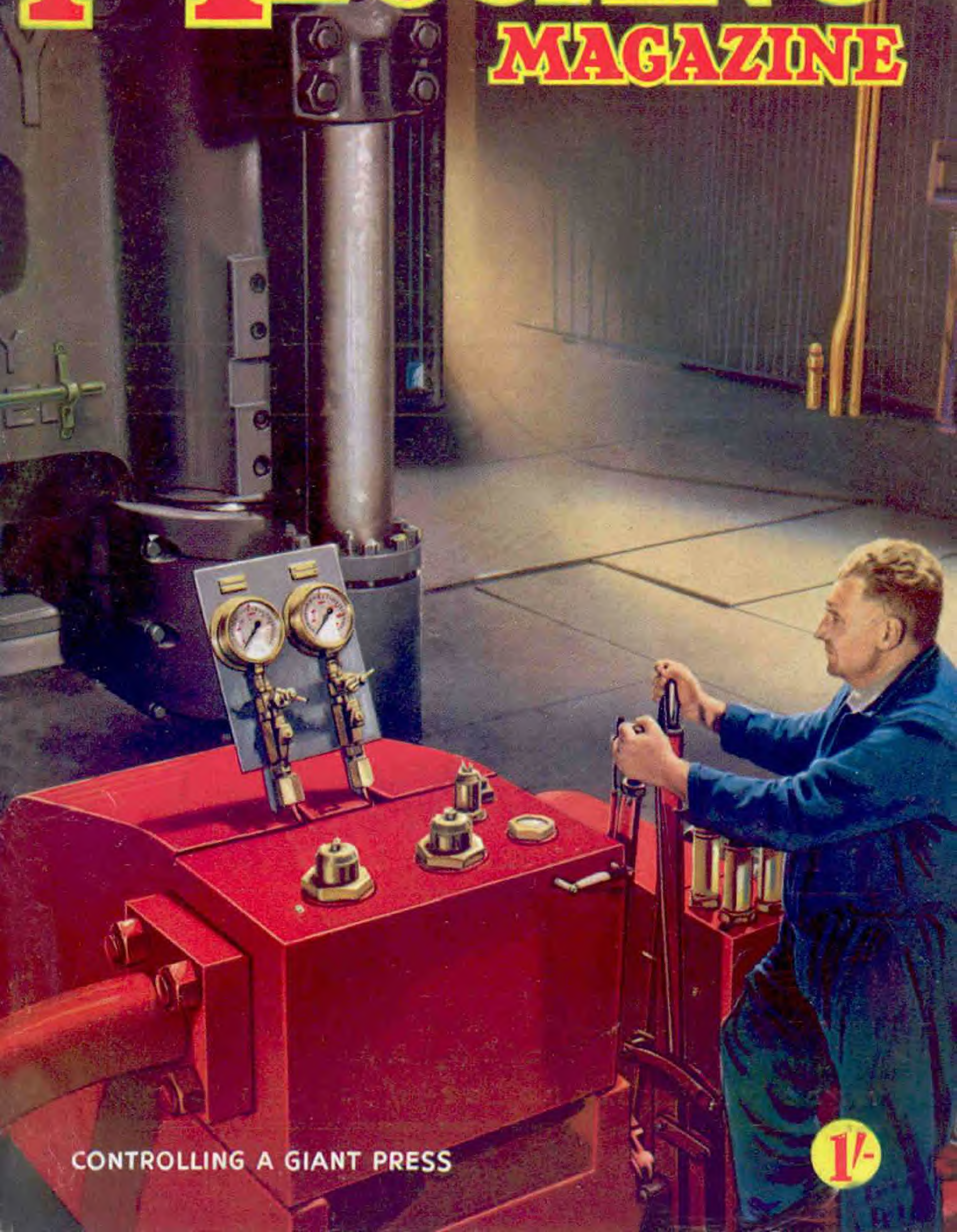


VOL. XXXVIII No. 9

SEPTEMBER 1953

MECCANO

MAGAZINE



CONTROLLING A GIANT PRESS

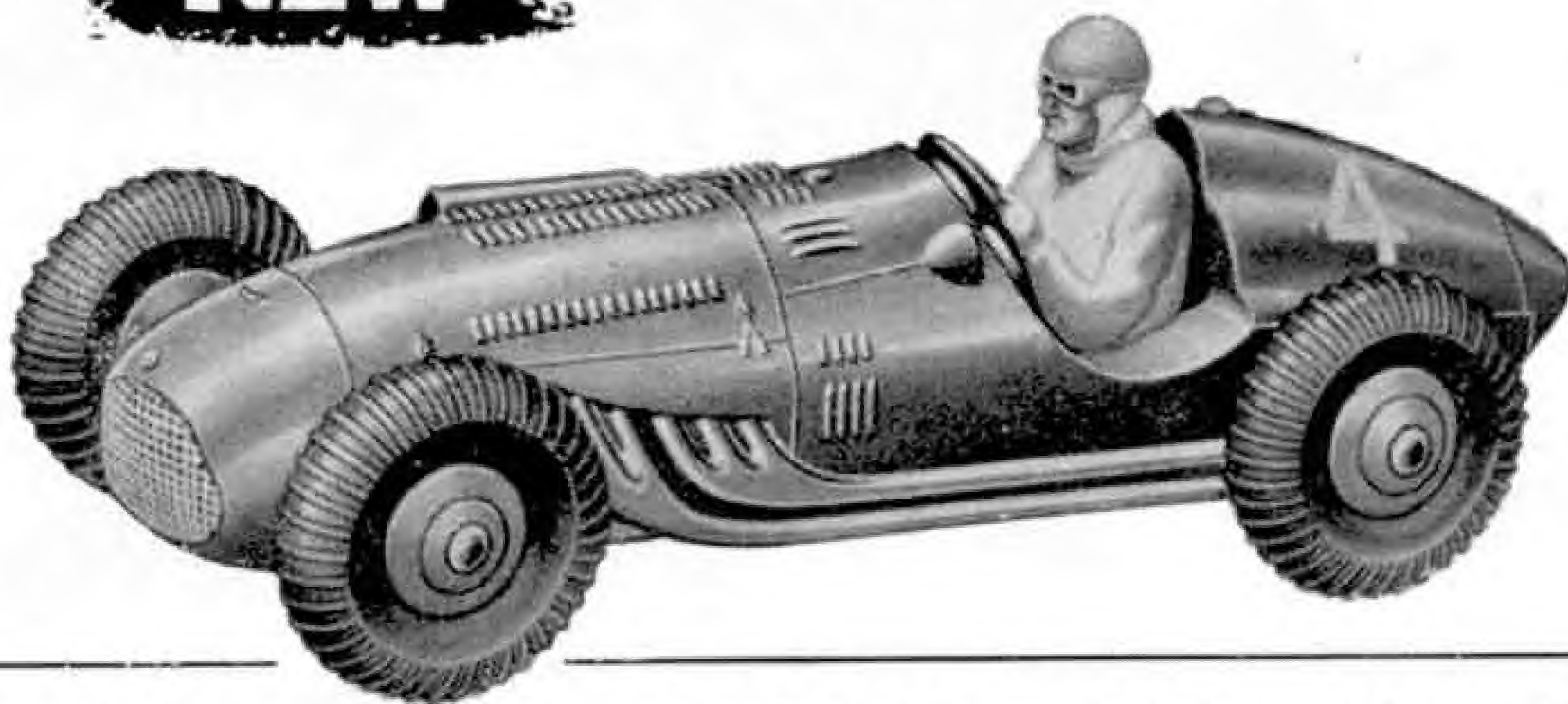
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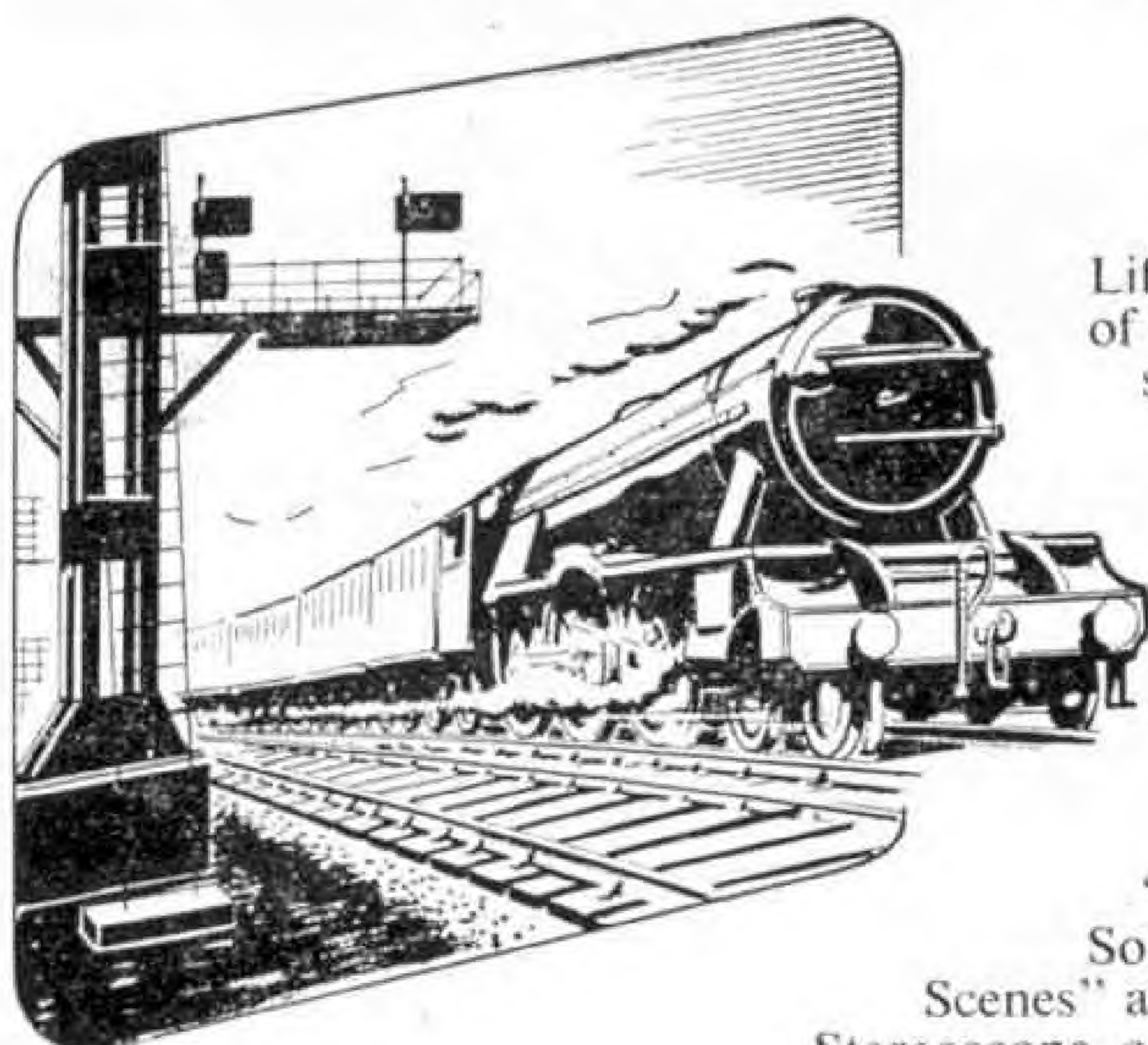


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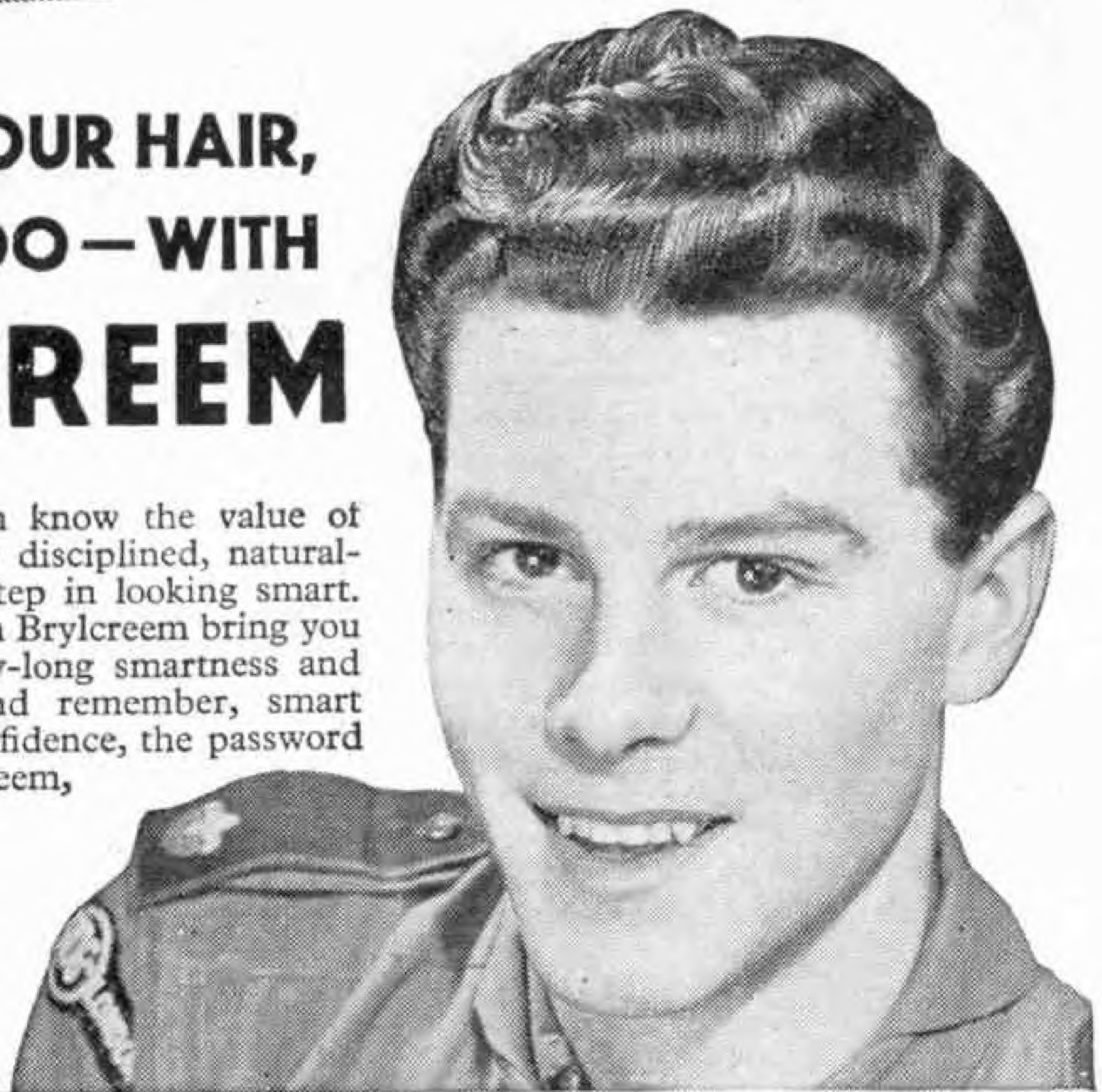
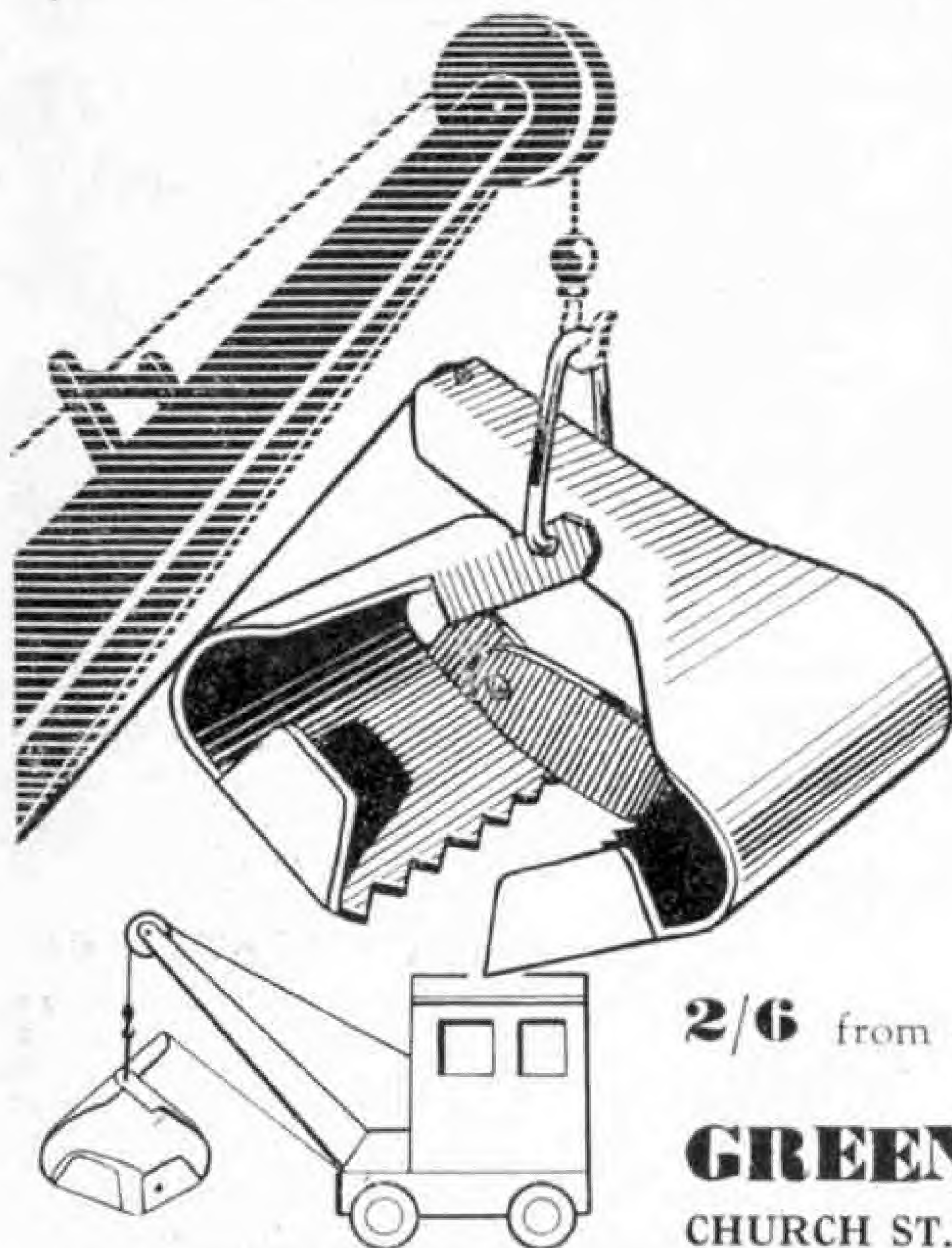


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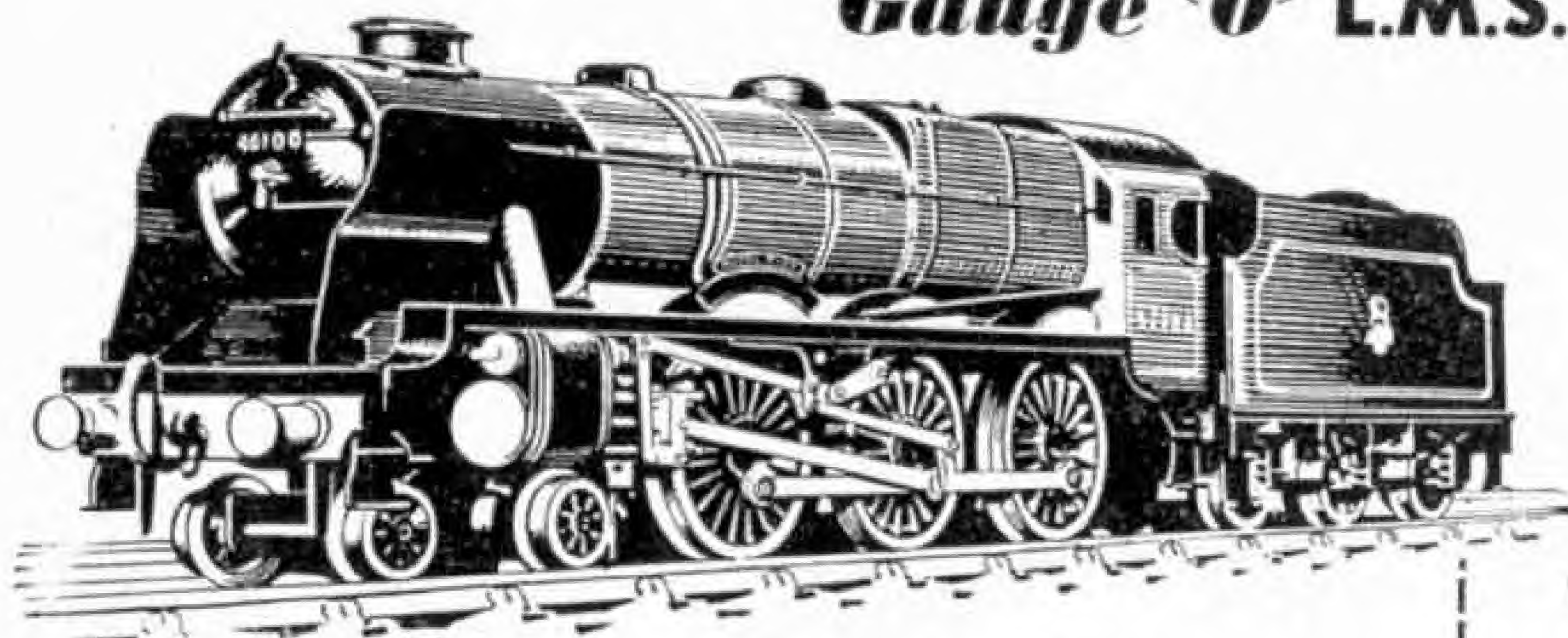
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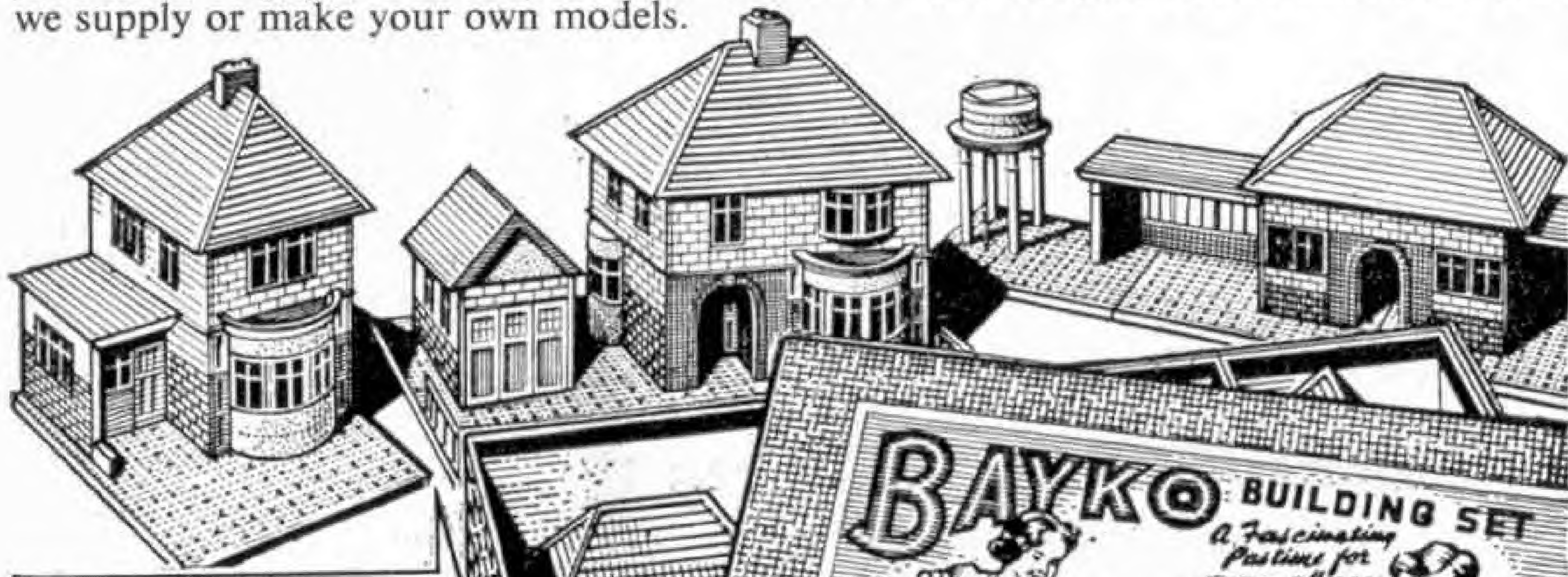
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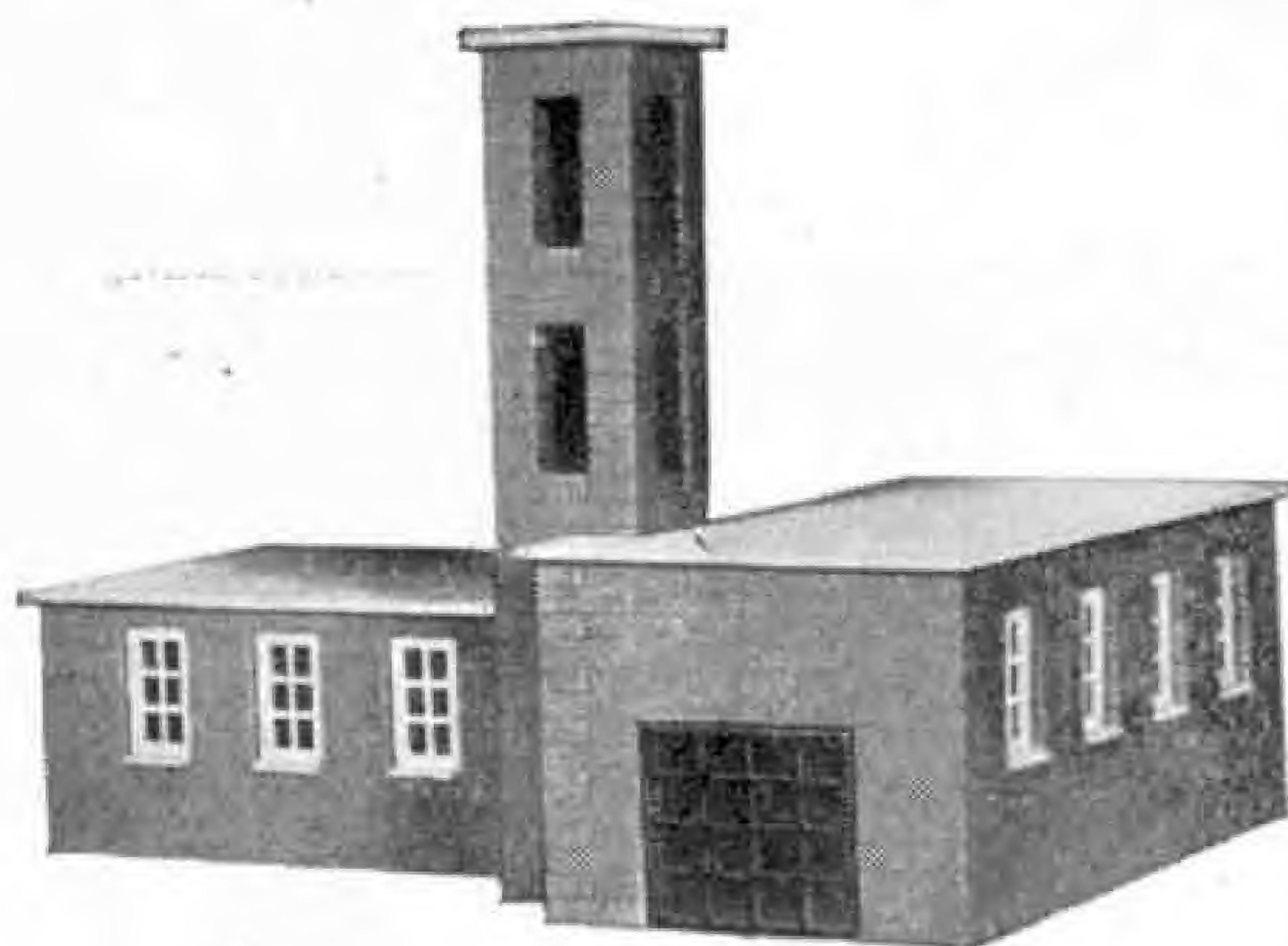
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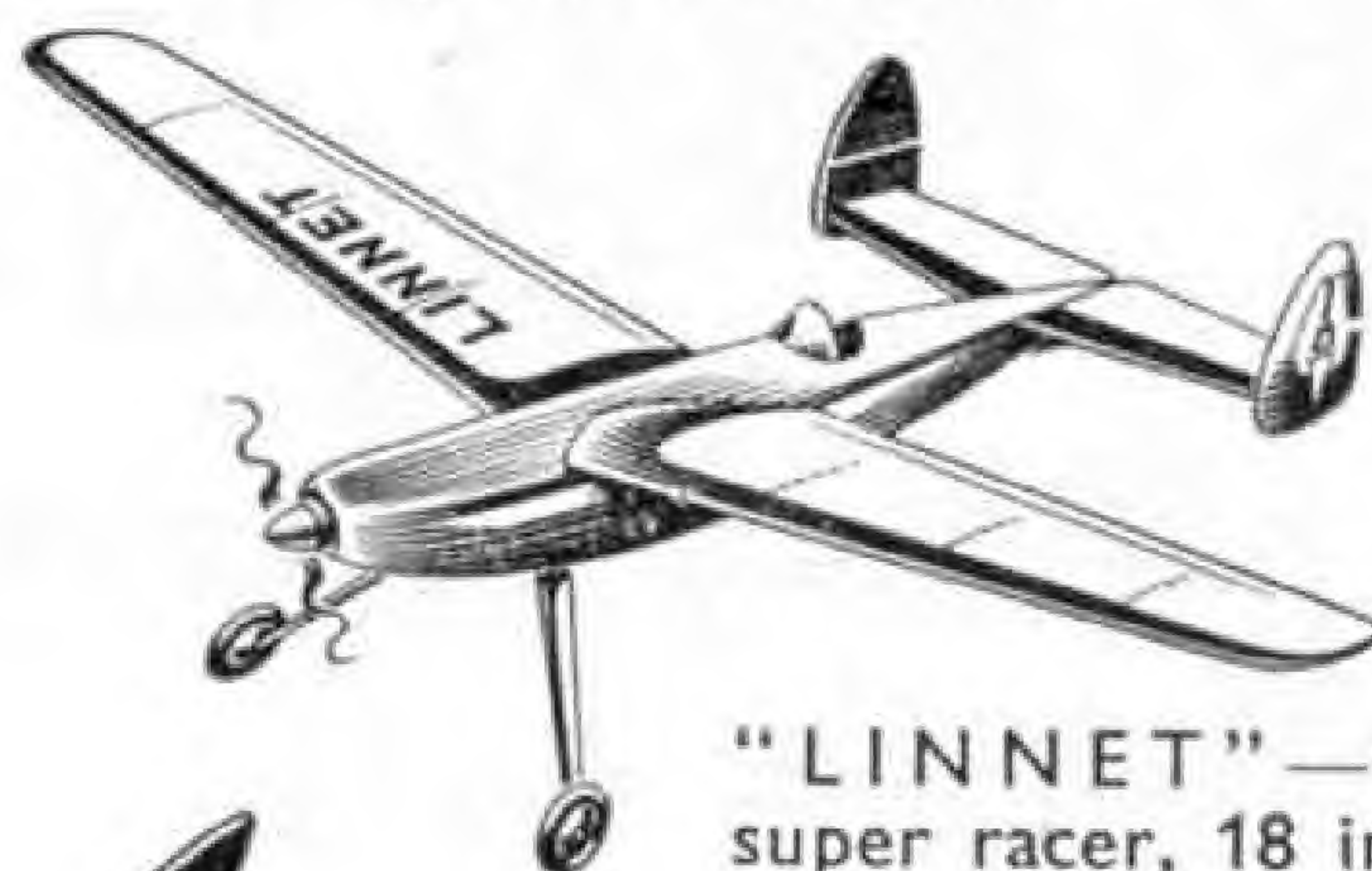
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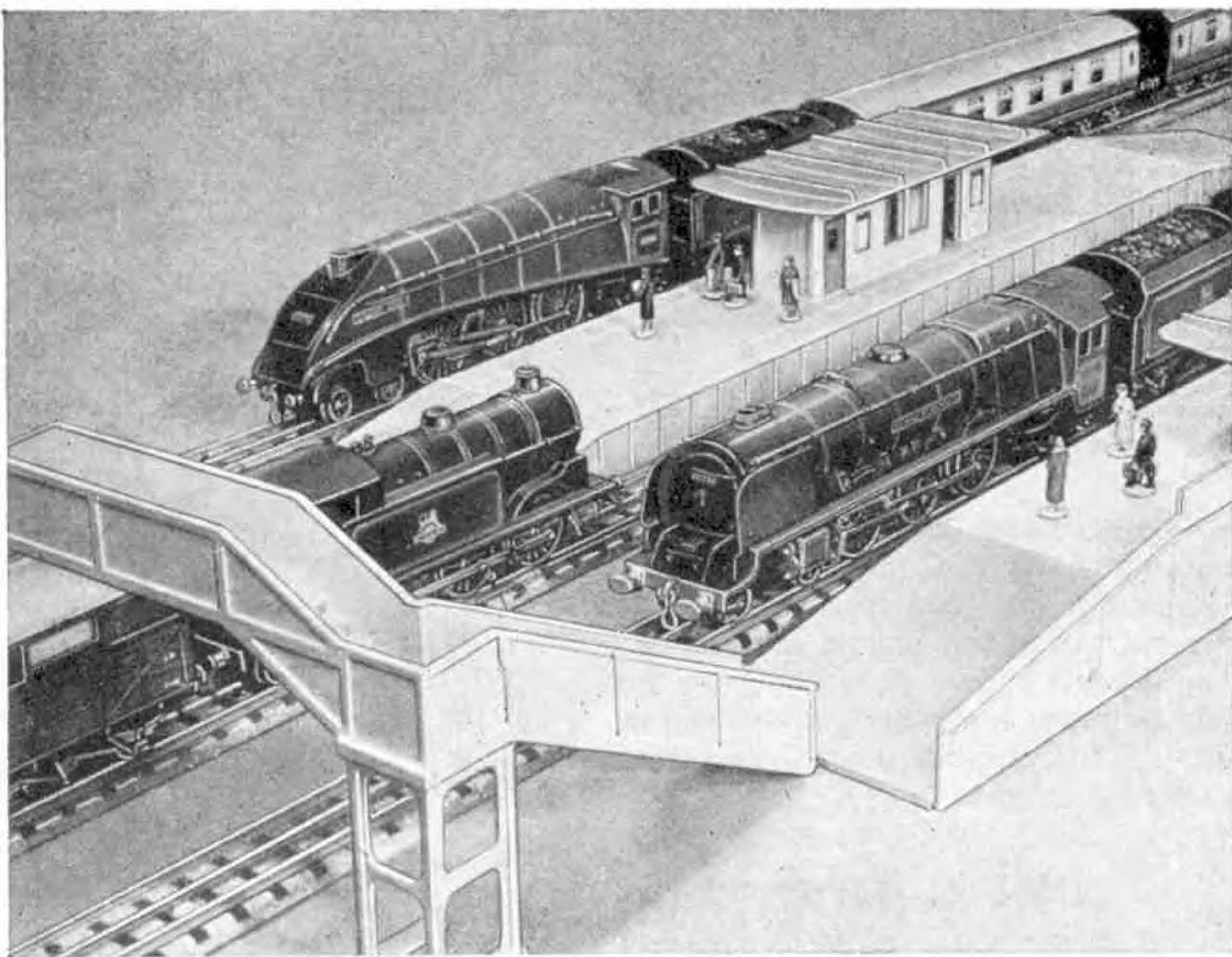
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Next Month: "ON THE FOOTPLATE FROM LEEDS TO CARLISLE."

MECCANO

MAGAZINE

Editorial Office:
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Vol. XXXVIII
No. 9
September 1953

Coming Attractions

When we reach September you look for news of what is to come in the *M.M.* during the indoor season. This issue makes a good start with the results of the 1952-3 International Model-Building Contest, which have been eagerly awaited in so many different lands. It is a great pleasure to me to congratulate here in the Magazine all those model-builders whose names appear in the list of prize-winners on their skill and perseverance, and indeed I have nothing but congratulations also for those who were not so fortunate, on the brave show they all made.

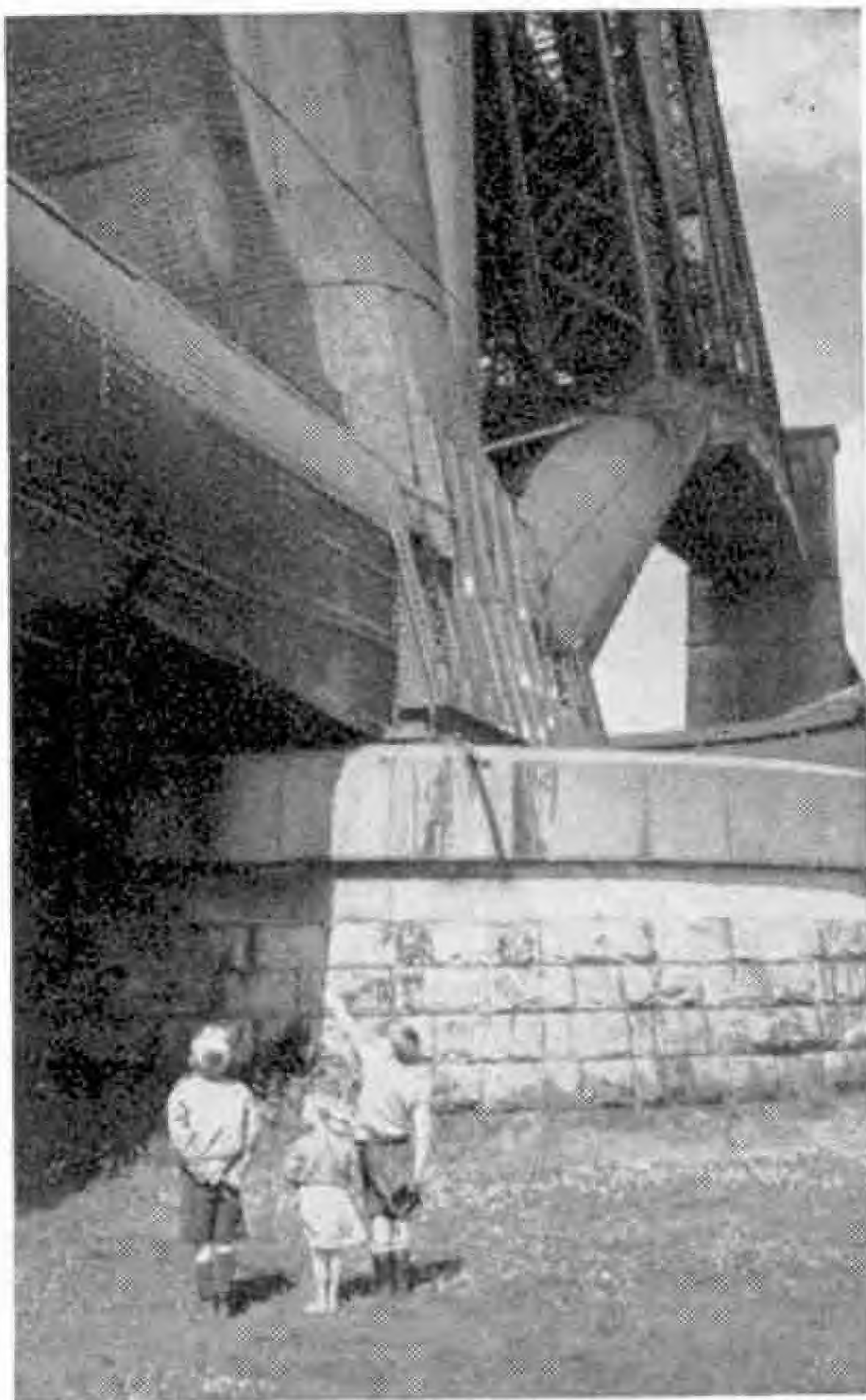
A special article in the present issue describes and illustrates two of Britain's latest giant trailers. One of the illustrations shows a casting weighing 164 tons starting on the arduous journey across the Pennines from Sheffield to Liverpool, and even bigger castings, weighing 185 tons, have since been transported over the same route. Many of you may have been fortunate enough to see one of these gigantic road trains. If you have, write to tell me what you thought of it.

Next month's *M.M.* will be full of the usual attractions, and also will contain

a real treasure in the shape of a contribution by Joe Mercer, who led the Arsenal to the Football League championship last season. What this prince of half-backs does not know about the game it would be difficult to find, and I am sure that what he will have to say about training, ball control and other fine points of the game will be immensely helpful to all who play.

A word of warning here. Would-be readers have missed special issues of this kind in the past by not making sure of them beforehand. Don't be caught in this way, either with the October issue or with other special issues that will follow during the winter. Instead, place a definite order *now* with your newsagent or dealer for a copy

every month, and tell your friends to follow your example.



Lost in wonder before an engineering masterpiece. This photograph, sent in by a reader of the *M.M.*, M. McDermott, Edinburgh, shows an unusual view of some of the massive steel tubes of the Forth Bridge, and of one of the twelve granite piers on which the bridge is supported.

The Editor

A Giant Under Exact Control

12,000-Ton Hydraulic Press for Light Alloy Forging

OUR cover this month shows the operator at work controlling a giant modern hydraulic press. The picture is particularly interesting because it shows how easily a press of this kind can be operated. The crosshead that is forced down on the work to be pressed weighs 108 tons, with its bushes, yet it is moved easily and quickly up or down at will by the operator, who simply pushes a small lever forward or pulls it backward. When he pushes the lever forward from the neutral position the crosshead descends as far as the work, taking up what is called the idle stroke. Its movement to a second position then applies the full pressure of 4,000, 8,000 or 12,000 tons to the forging, as the case may be. This pressure is sustained when the lever is returned to the neutral position, and then pulling the lever farther back releases the pressure and lifts the crosshead.

This splendid forging press was designed

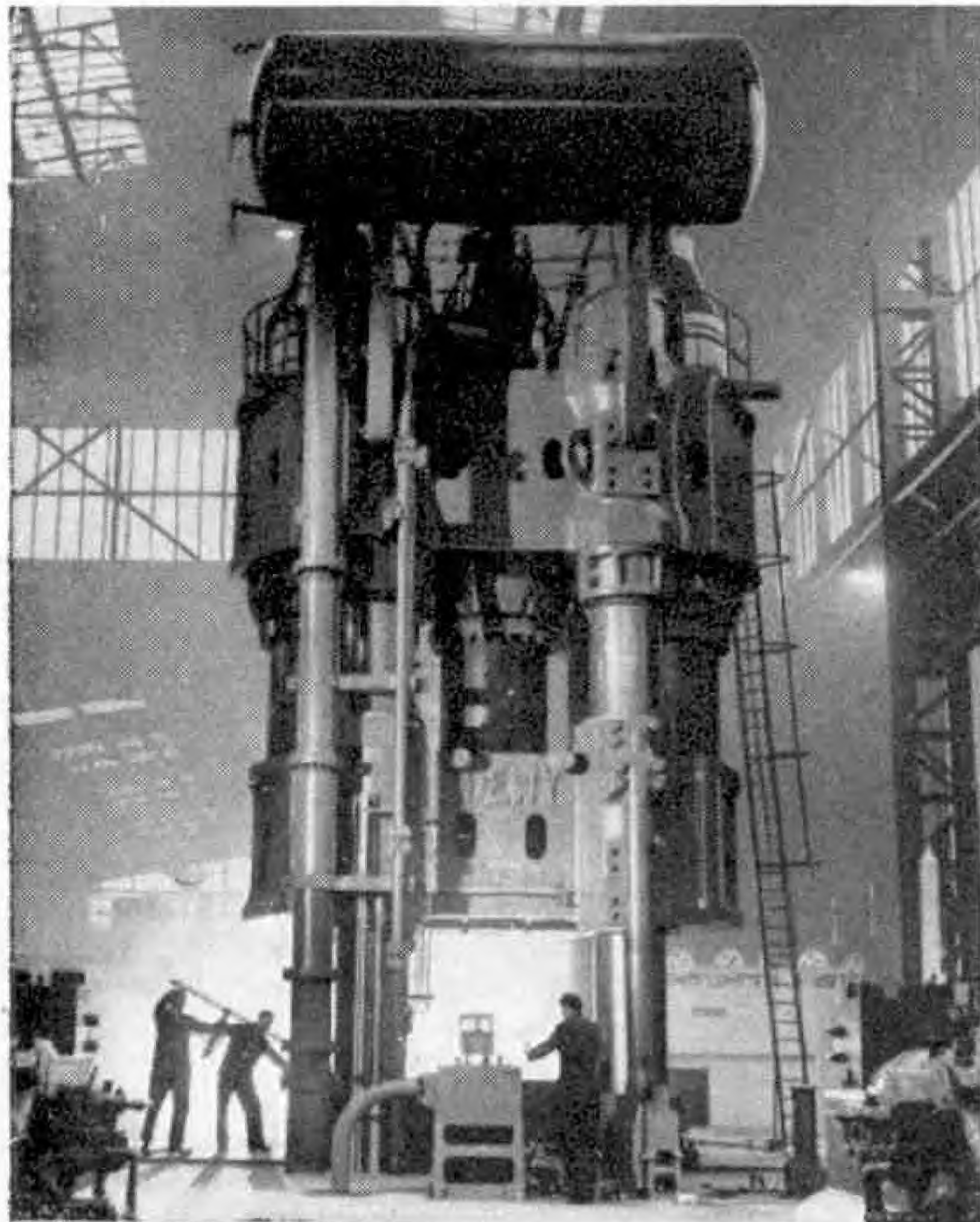
for use with light alloys, and began work in February last at the Redditch Works of High Duty Alloys Ltd. on the production of forgings mainly required for aircraft work. It was built by the Davy and United Engineering Company Ltd. to the basic designs of the Loewy Engineering Company, and is the largest of its type for light alloy work in Great Britain.

Because of its size it is now possible to produce certain aircraft parts in light alloys by simply pressing billets of metal between the two parts of a die instead of building them up in sections and assembling these together. The general principle is to heat the dies uniformly to the most suitable temperature for pressing, which is about 400 degrees Centigrade. The metal to be pressed is similarly heated and the required press load is applied to it for one minute. For large die forgings this process is best carried out in stages.

The press itself is 56 ft. 4 in. high and weighs 800 tons. Actually 13 ft. 7 in. of its height is concealed below ground level, where the hydraulic system for operating the movable table of the press also is placed. To provide for this, and to give ample room below ground for maintenance engineers to work in, a huge chamber had to be excavated, 2,500 tons of soil being taken out of it. To build up the foundations on which the giant press rests, which must of course be capable of withstanding the enormous thrusts of the crosshead, 500 tons of concrete were poured in one continuous stream for 67 hours.

Erecting this giant press called for a considerable amount of work overhead as well as below ground, for the roof of the building in which it is housed had to be raised from its former height of 40 ft. to one of 87 ft.,

The complete 12,000-ton press in operation. Here the billet to be forged is being settled in the die after the moving table has returned under the press. We are indebted to the courtesy of High Duty Alloys Ltd. for our illustrations and for the photograph on which our cover is based.



An impressive picture behind the scenes, showing several of the giant vessels containing air at a pressure of 300 atmospheres that help in maintaining the pressure required to operate the 12,000-ton press.

and heavier stanchions had to be provided to carry the tracks for the special 100-ton travelling crane, which has a subsidiary lift of 25 tons.

The press has two bed plates, each weighing 14 tons, and on them are four adjustable plates recessed to take the ends of the four giant supporting columns, each 31 in. diameter and weighing 53 tons. These columns serve two purposes. They pass right through the lower platen and the moving crosshead, and are finally fixed above the top platen, so that they act as a tie to the whole press; their second purpose is to provide the means of carrying and guiding the moving crosshead. The lower platen is made up of three castings, a centre section weighing 64 tons and two side sections weighing 42 tons each, and these are dowelled, dovetailed and bolted together to form one piece. The centre section forms the bed on which the hydraulically controlled moving table travels, and on which the bottom forging or pressing dies are fixed. The upper dies are placed on the lower face of the moving crosshead, which has in it the necessary spigot recesses and tee slots for locating and fixing them.

Readers will already have realised that the press is hydraulic, that is the actual movements of the crosshead, down for forging or up on release, are effected by water pressure. The equipment required for this includes the accumulator unit, which has four treble ram pumps, each driven through reduction gear by 550 h.p. motors, a water storage tank with a capacity of 6,500 gallons, two water vessels and twelve air vessels. The twelve air vessels are fed by high pressure compressors that maintain in them a pressure 300 times that of the atmosphere, that is a pressure of about 4,200 lb. to the square inch.

The ease of control of the crosshead in forging operations has already been referred to. The operator has two other controls. One of these operates the moving table, which carries the lower die and slides



under the press when forging operations are to be carried out, and the other is for an ejector mechanism that releases the completed forging. These controls are interlocked so that the table cannot be moved while the ejector is in the up position.

There are also many automatic safety controls. For instance, if the water drops below a minimum level a low-level stop valve is automatically shut and a warning siren sounds. If on the other hand the water level in the air bottles is too high, so that the pressure is above the normal 300 atmospheres, a hooter begins to sound and continues to do so until normal pressure is restored. The entire system is under constant watch from the control position through an illuminated indicator panel, which shows by means of coloured lights which pumps are on load and the position of the low level valve.

The scale of the press is well shown by the illustrations reproduced on these pages, particularly that on the opposite page, in which it can be compared with the figures of the operator and the men settling the billet to be forged in the die.



How the Eskimo Builds a Sledge

Runners Made of Mud—and Blood

By Frank Illingworth

SCIENTISTS have for years been trying to make a sledge superior to the clumsy variety made by the Eskimo.

They designed one with runners of plastic, and with aluminium cross-struts, for the recent Anglo-Scandinavian Expedition to Queen Maud Land in the Antarctic. When the Royal Canadian Mounted Police asked the Canadian National Research Council to design a light-weight sledge that would stand the battering of 1,000-mile "sledge patrols," the scientists produced a streamlined model largely of bakelite. The Scandinavians, the Americans, and the British have in turn tried to build a sledge that is light and yet equal to the Eskimo *komatik*.

But recent reports from the British explorers now in the Northern Greenland ice cap suggest that not even the most modern and reliable of tracked vehicles can equal the performance of the Eskimo sledge; the plastic runners used in the Antarctic were said to freeze-up with "balled" snow and the R.C.M.P. have yet to adopt the streamlined super model designed by backroom boys. To Mounties, missionaries, meteorologists, prospectors, trappers and explorers, the heavy Eskimo *komatik* with runners of frozen mud and glazed with ice or frozen blood is still the foundation of travel over an area of the Arctic

more than twice that of the United States.

The sledge built by the Eskimo for his winter hunting trips of 2,000 miles and more is as much as 20 feet long. It is made up of timber lengths lashed together with rope or rawhide, and will carry loads of a ton for thousands of miles of crashing across ice hummocks ten feet high. By appearance it might have been flung together. In fact, it is carefully 'balanced,' and its mud runners are among the most remarkable inventions in the history of transport.

The mud-and-blood runners of the Eskimo sledge are among the most remarkable inventions in the history of transport. Over thousands of years they have been proved superior to the latest productions of scientists and engineers with runners made of aluminium, bakelite, etc. In this article we are told how to make a sledge that will stand thousands of miles of pounding.

The Eskimo goes to great pains to find just the right kind of mud. It must be entirely free from stones, gravel or sand, and the Eskimo goes to one mud patch after another, working with an axe chopping out an ounce or two for sampling between his worn-down teeth.

When he finds a suitable mud, he hacks about 100 lb. from its bed, thaws it with water or heat and fingers through it for strands of greenery or roots.

A ball of soft mud six inches or more across will cover seven or eight inches of runner, the mud freezing within seconds of being "rolled along the running edge of the runners."

Now comes the matter of applying a glaze to the runners. It is not just a question of squirting water over them. The water must be neither too hot nor too

cold, for water that is too warm will melt the surface of the mud, and as for cold water—this makes what is called white ice, which offers friction. No! The water must be just the right temperature! And it is just right when held in the mouth for a few seconds—when the Eskimo squirts it on to a pad of polar bear skin which he runs swiftly along the runners.

But there is more to the smooth running of a sledge than this. The water must come, not from ANY snow, but from the hardest of white granules. "New snow makes soft ice," the Arctic dweller tells you. "Only old hard snow makes hard ice, and best of all is frozen blood—that is hard wearing! Very good for coating runners."

The great advantage of mud runners is that they are easily repaired. At the end of each day's travelling the dog-team driver inspects the runners of his sledge, and where they are damaged he goes to work



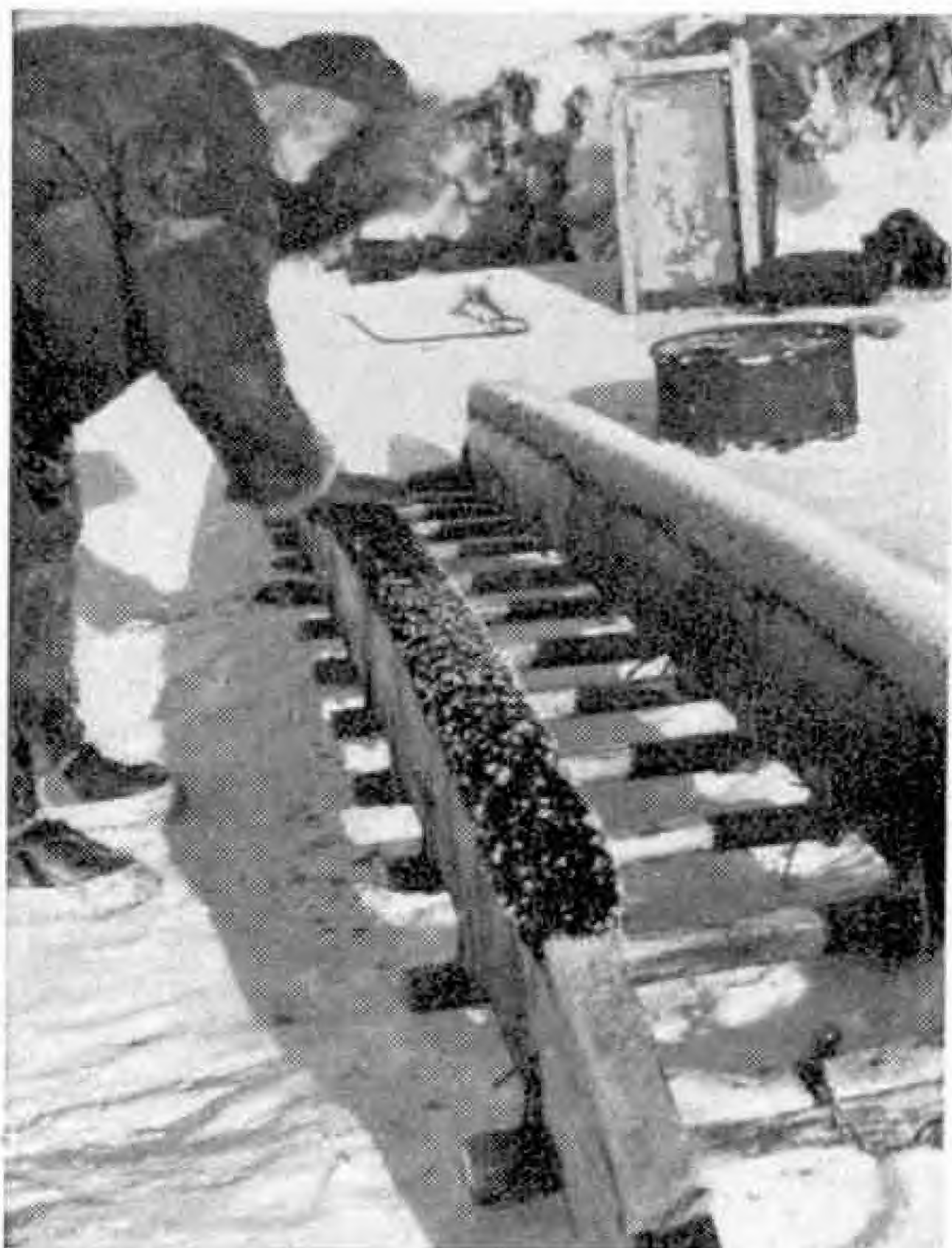
Preparing sledge runners by rubbing frozen mud on them.

with handfuls of wet oats—porridge in fact—and with hunks of meat or fish, which are forced into the gaps in the mud runners and freeze solid in a few seconds.

There are several sources of wood for the framework of the sledge. Along the beaches of Arctic Canada and Greenland is timber deposited by the swift currents that sweep across the Polar Ocean from Siberia. Nicely trimmed lengths of spruce can be bought from the nearest fur-trading post—which may be several hundred miles away. Or the Eskimo can sledge to the tree-line, again possibly several hundred miles away, and cut a suitable spruce from which to make the two long side-members of his new sledge.

Back at his igloo he sets to work with handsaw and knife and drill, and he shows as much care in fashioning the side members as a cabinet maker in producing high-class furniture.

The two members have to be exact twins. "Otherwise," the Eskimo nods knowingly, "the sledge won't run straight." He cuts the side uprights to a depth of 12 inches or so and a width of three inches. Then he nails them together and scrapes away at them until they curve gently from the centre towards one end—the front of the sledge. By nailing the boards together he can be sure that they will be identical in curve. Then he drills holes every foot along the top edges. These are for lashing the cross-pieces to the side members and only when the latter are identical in their holes and their curves does he separate them and begin to lash his various lengths of timber into—another *komatik*.



Still at work on a sledge runner, the whole length of which can be seen in this picture.



The Eskimo sledge, with its runners of frozen mud glazed with ice or frozen blood, runs freely over a snowy surface.

The sledge that is riveted, nailed or screwed together will break up in no time. But by lashing the members one secures the *give* that is essential if the sledge is to survive the battering of travel across contorted iron-hard ice and broken glazed rocks.

Sometimes, through some unforeseen happening, such as fire or the grinding of pressure ice, the Eskimo may lose his sledge. Then he sets to work to make another from whatever may be handy—from the pelt of a caribou soaked and frozen, with runners comprising four or six salmon placed tail to mouth in two lines, for lashing with strips of hide threaded through holes along the edge of the pelt and through the frozen fish.

At a pinch he makes uprights from ice hacked from sea or lake with axe or knife. For cross-pieces he rolls clothing into two-foot lengths and freezes the rolls on to the uprights; or he rolls lengths of caribou or seal skin into cross-pieces and freezes the hairy side into the ice!

Very often the Eskimo uses three sets of runners, one of metal (preferably steel), one of ironbark (a hard Australian wood on sale in the trading-posts) and one of mud. Why three sets?

Well, the mud runners are ideal for winter travel. But with the return of spring these soften, when they are knocked away—to expose runners of Australian ironbark. These the sledge traveller glazes with water, and when rising temperature causes their surface to melt the Eskimo removes them—to expose his last set of runners, three-inch strips of metal fastened with long screws.

The Eskimo usually owns three sizes of

sledge: a light-weight, stump racing model which, with a good team of dogs in the traces, will cover 60 miles in eight hours; a roughly made sledge for the children to play with; and, most important of them all, the 20 ft.-long, heavy *Komatik*, which is designed to withstand the pounding of travel among broken ice hammocks, and is certainly one of the most remarkable inventions in the history of transport.



The ball of frozen mud used by the Eskimo for coating his sledge runners is clearly seen here.

Little Engines that do a Big Job

THE shunting engine, that is the type of engine that does little else but shunt, is rarely in the news. The carriage pilot or shunting engine at a big station such as York or Newcastle is much more in the public eye than the goods shunter and it may even sport the green passenger engine livery. In fact, some of them do, in former L.N.E.R. districts. But the black goods shunter usually does its work in yards remote from ordinary observation. Many yards indeed form little railway "kingdoms" on their own, as it were, busy throughout the 24 hours because traffic must be kept moving all round the clock.

The steam locomotive is very adaptable. It can be overloaded, ill-treated and even neglected, and it will still "go." But it is not the ideal form of motive power for shunting. It has to be coaled and watered, to have its fire cleaned and perhaps to have further attention at fairly frequent intervals, when of course it has to leave the job to visit the locomotive yard or shed. So a larger number of engines is needed than would be the case if continuous duty were possible. Again, when standing by, the steam locomotive still uses fuel and water and it has to be manned by a crew of two.

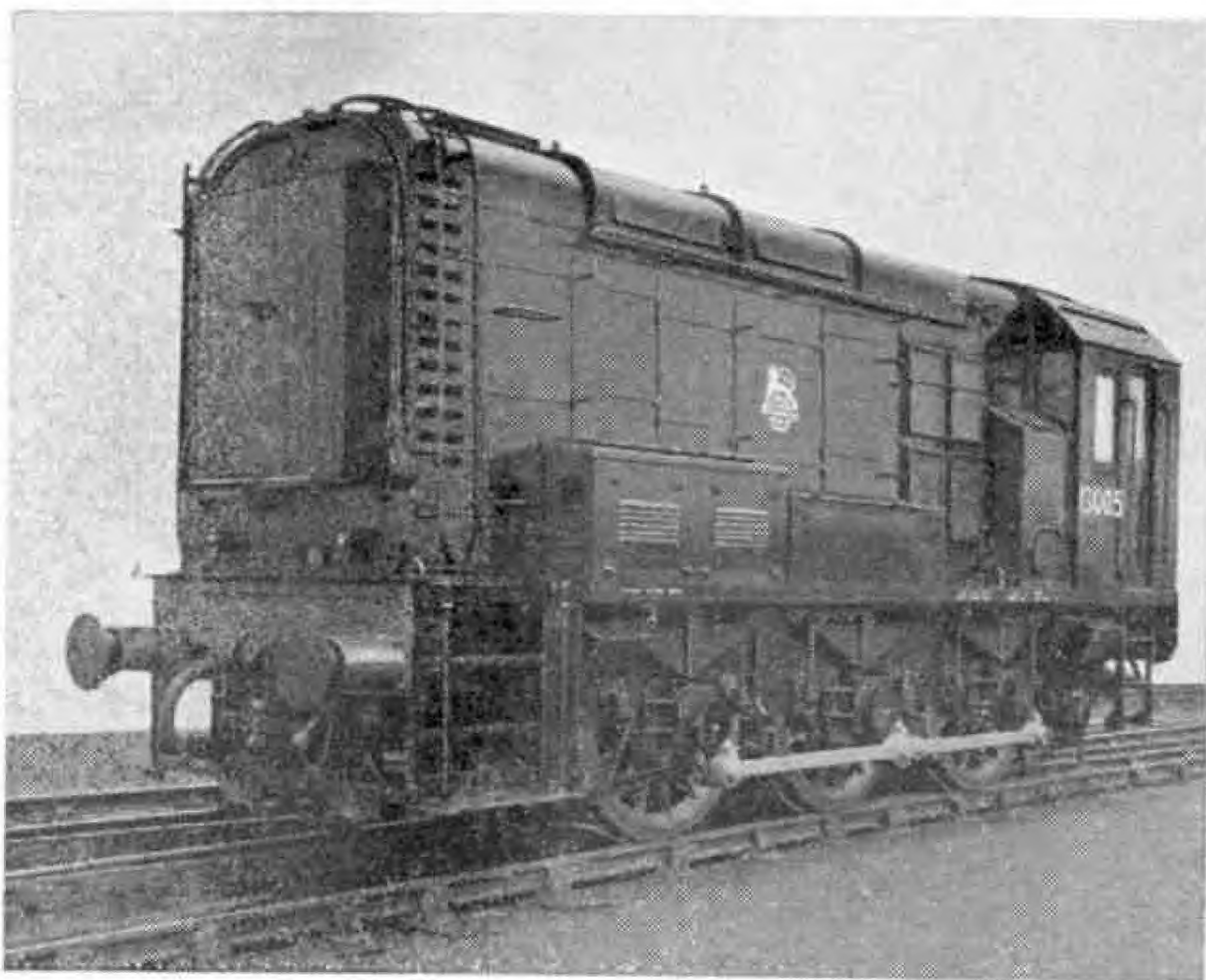
This is where the diesel locomotive comes in. The diesel engine can be shut off when the locomotive is not in use. It carries enough fuel for lengthy tours of duty and it can be handled by one man only.

Most readers will already know that the diesel shunting locomotive has come into fairly extensive use in this country. A standard design has been evolved by British Railways. Some of these engines have already been put into traffic and it is planned to provide 573 of them during the next five years. Although they are only 29 ft. long, weigh 50 tons, and their maximum speed is but 20 m.p.h., they have a

tractive effort as great as some express locomotives. And they carry enough fuel for 10 to 15 days' almost continuous duty.

The cab is fully enclosed, heated by hot-water radiators, electrically lighted and provided with an electric food warmer. There is an adjustable upholstered stool for the driver on each side of the cab. The coupled wheels are 4 ft. 6 in. in diameter and the coupled wheelbase is moderate at 11 ft. 6 in. A platform is provided at the front end on either side so that shunters can ride down the yard when required. This is better for them, if less spectacular, than the usual stunt of hanging precariously on the cab footsteps.

A diesel engine cannot drive the wheels direct. It has to have some form of transmission, either mechanical or electrical. So the 6-cylinder diesel engine is coupled directly to a generator, the two forming a unit mounted on the locomotive frames. The generator supplies current to two electric traction motors mounted on the leading and trailing coupled axles respectively. A diesel engine is not self-starting, so a separate starting winding is provided to allow the generator to be used as a motor on current supplied from the battery in order to start it.



One of the small but powerful diesel-electric shunting locomotives of B.R. standard type. It has a maximum speed of 20 m.p.h. and can operate almost continuously for 10 to 15 days without refuelling. British Railways Official Photograph.

1953 Paris Fashions

By John W. R. Taylor

JUST as fashion experts flock to Paris to see the latest creations of such famous dress designers as Christian Dior, so do aviation experts go there to study the newest styles in aircraft design at the bi-annual *Salon de l'Aéronautique*. They are seldom disappointed, for French designers can be relied upon to provide plenty of surprises, combined with touches of real genius.

This year's show was no exception. It was the twentieth *Salon*, and more than 150 exhibitors from nine countries displayed their latest aircraft, engines and components at Le Bourget Airport, either in the open or on stands in the specially-built 98,000 sq. ft. exhibition building, which will house the French National Air Museum now that the show has closed. Britain sent some of her latest jets to thrill the crowd, including a Canberra, Hunter, Avro 707 delta and the Swift, which flew from London Airport to Le Bourget in 19 min. 6 sec., at a new record speed of 669.3 m.p.h. But for sheer originality of design, the French stole the show.

Some readers may recall that, two years ago, when I described the last *Salon* in the *Meccano Magazine*, I wrote: "One gained the impression that if the ability of French designers and the terrific skill of French pilots could be combined with an effective production policy from their Government, France might well regain her position in the forefront of world aviation development. As it is, the policy appears to be lacking, and without it all these promising aircraft may end up merely as superb might-have-beens."

Fortunately since then, with British and American encouragement and a large injection of U.S. dollar aid, the production position has improved enormously. Take for example the single-seat jet fighters

designed by the Dassault Company. In 1951 prototypes of both the Ouragan (Hurricane) and Mystère were exhibited, and I wrote that the latter "looks rather like the MIG-15 and should be in about the same class as this Russian jet."

Today, we know it is a good deal better in its latest form, the Mystère IV, powered by a French-built Rolls-Royce Tay turbojet of 7,250 lb. thrust. Its pilot, Colonel Rozanoff, flashed it past the crowd at Le Bourget at nearly 700 m.p.h., a mere 50 ft. above the ground, and has already flown it through the sound barrier many times. If we are to believe the refugee Polish pilot, Lt. Jarecki, the MIG-15 has



The Mystère IV single-seat fighter is powered by a French-built Rolls-Royce Tay turbojet of 7,250 lb. thrust.

yet to fly faster than sound.

More important, the Mystère is in production, financed largely by U.S. Offshore Procurement orders worth £30,000,000. First will come 150 Mystère IIs, powered by 6,250 lb. thrust Tays; then 225 Mystère IVs, mostly fitted with 9,000 lb. thrust Rolls-Royce Avons or France's own fine SNECMA Atar turbojets. Meanwhile, the French Air Force has already received more than 100 of the 350 straight-wing Ouragans on order.

Altogether, four aircraft were flown faster-than-sound on 5th July, the last day of this year's *Salon* at Le Bourget—the Mystère IV, the Hunter, the Swift and the new SO.4050 Vautour twin-jet all-weather fighter, built by one of the big three French nationalised concerns, Société Nationale de Constructions Aéronautiques du Sud-Ouest (S.N.C.A.S.O.).



The 3-seat SO.1310 Farfadet. Photograph by courtesy of S.N.C.A.S.O. Company, France.

Few details of the Vautour have been published; but it is certainly one of the finest aircraft of its type in the world. Two 5,500 lb. thrust Atars give it a speed of around 685 m.p.h. in level flight, and it has been ordered into production for the French Air Force. The prototype is a two-seat all-weather fighter, with main armament of air-to-air guided missiles; only slight changes to its nose and equipment are necessary to convert it into a single-seat ground attack fighter or two-seat atom-bomber. It is, of course, a sweptwing machine, with the now familiar tandem main undercarriage units retracting into its fuselage.

The Mystère and Vautour are fairly orthodox in design; but there is nothing orthodox about some of the other new French military prototypes. Indeed, it would be difficult to conceive two more different approaches to the same problem than the Potez 75 and the Sud-Est (S.N.C.A.S.E.) Baroudeur.

Both are intended for close support of ground forces, and Potez have gone flat out for an easy-to-build, easy-to-fly, and

easy-to-service "battling bantam." Their model 75 is, consequently, a far-from-beautiful all-metal two-seater of the simplest possible construction, with fixed undercarriage and a Potez 8D "pusher" engine of only 450 h.p. It has a span of 42 ft. 8 in., weighs 5,290 lb., cruises for 465 miles at 152 m.p.h., and it is armed with two 30 mm. cannons and two anti-tank guided missiles. Its observer sits in a comfortable little gondola at the front, but the pilot has to be content with an open cockpit on top.

In contrast, the SE.5000 Baroudeur is an ultra-streamlined, sweptwing five-ton single-seater, powered by a 6,000 lb. thrust Atar which gives it a speed of 685 m.p.h., carrying an armament of two 30 or 37 mm. cannons and 24 rockets. It was designed by W. J. Jakimuik, who was responsible for the D.H. (Canada) Chipmunk and Beaver before he left Canada for France.

To keep down the Baroudeur's weight to about two-thirds that of a conventional fighter, Mr. Jakimuik has dispensed with an undercarriage. Instead, it takes off on a

jettisonable rocket-propelled trolley and lands on retractable skids. Sud-Est claim that this enables it to operate from almost any type of surface short of a ploughed field; and they give the price as £50,000, compared with the £130,000 Mystère or £160,000 Sabre.



Potez 75. This interesting "battling bantam" type has a 450 h.p. "pusher" engine and a fixed undercarriage.

Another revolutionary French fighter shown at Le Bourget was the SO.9000 Trident, described in the June 1953 *Air News*. At the moment its big rocket engine is not fitted; but it looked very fast even with only its two small wingtip-mounted Marboré turbojets. Nor did it appear to be as difficult to fly as one would expect in view of the small area of its square "straight" stub wings.

The French claim that wings of this shape are better for ultra-fast flight than the Delta formula, and their big new Leduc 0.21 ramjet-powered interceptor is also straight-winged. It is little more than a flying stovepipe, as its engine—of which the fuselage forms the outer shell—contains no moving parts. Air is simply rammed into the front, mixed with fuel from scores of sprays, and burned to produce tremendous thrust.

The Leduc is designed for supersonic flight, and its pilot lies flat in a transparent plastic nose-cone, designed to withstand temperatures up to 160°C. He need never see his target in action, as the two 30 mm. cannons are radar-aimed.

These aircraft—the Mystère, Vautour, Baroudeur, Trident and Leduc—are perhaps the most sensational of present-day French designs. But, to back them up, are a score of other very practical, first-class types. Availability of the unique Turboméca series of baby turbojets has enabled French designers to lead the world in the development of lightweight two-seat

jet trainers, and at Le Bourget we saw three of them—the 480 m.p.h. Morane-Saulnier MS.755 Fleuret and Fouga CM.170R Magister, each with two 880 lb. thrust Marborés, and the tiny SIPA 200, with a single 330 lb. thrust Palas, which



The twin-engined Hurel Dubois HD.31 has Monsieur Hurel's special type of long span, very narrow wing.

gives it a cruising speed of 236 m.p.h.

The 23 ft. span SIPA was regarded rather as a joke at the last Paris Salon, before it had flown. Now it is recognised as one of the most manoeuvrable, easy-to-fly aircraft in the world, and there is little doubt of the usefulness of all three of these French lightweight jets, whose cost is only a fraction of that of an orthodox jet trainer.

At Le Bourget also we saw the twin-boomed Noratlas freighter, which is in big-scale production for the French Air Force and the Brazilian airlines Aerovias Brasil and VASP. But the most interesting transport was the beautifully-constructed 36-seat, twin-engined Hurel Dubois HD.31, fitted with Monsieur Hurel's special type of long span, very narrow wing. Its quick take-off, rate of climb and single-engine performance are quite exceptional, and there is little doubt that we shall (Continued on page 484)



The new SO.4050 Vautour twin-jet all-weather fighter. Photograph by courtesy of S.N.C.A.S.O. Company, France.

BOOKS TO READ

Here we review books of interest and of use to readers of the M.M. With certain exceptions, which will be indicated, these should be ordered through a bookseller.

"RAILWAYMEN'S GALLERY"

By ROGER LLOYD
(Allen and Unwin 12/6)

Canon Lloyd has given us a book about railwaymen and railway matters that might almost be described as the amateur's appreciation of the professional. It gives several vivid pictures of railway scenes, old and new, each of which is complete in itself. Most of them are historic in aim, and all of them emphasise the human side of our great transport system and its working.

The author begins by paying honour to the pioneers of our railway system. They "had everything to learn and there was no one to teach them." Among them it was Stephenson who first mastered the art of driving track across difficult country and who decided what the gauge of British railways was to be, and if he was not the first locomotive engineer, he was certainly the first all-round railwayman.

Who did the actual work in the building of the early railways, when mechanical aids to the driving of tunnels, excavation of cuttings and the raising of embankments were practically non-existent? They were the pick and shovel men, the old English navvies, whose nomadic existence and characteristics, causing them to be almost a race apart, engage attention in the second chapter of the book. With the railways built, the men both high and low who ran them had to develop their competence, and after the period of the Railway Mania came the great age of the railway administrator, the strong General Manager or Chairman who became and remained quite a type in the affairs of British railways. With the spread of the railway system came the formation of the typical railway town, based on railway works. Crewe and Swindon are outstanding examples and the book shows how they grew and how they solved their own special problems.

Railway operation and administration to-day is the result of the gradual development of the railway system and of railway techniques. To show something of modern traffic operation under pressure and of the organisation behind the working of the trains, and generally how movements are recorded and controlled, the author tells fascinating stories of the working of the Highland line in wartime, and what goes on behind-the-scenes at Crewe, lastly returning to the Highlands for a couple of footplate journeys.

"LEARNING MORSE"

By the Editor of *Wireless World*
(Iliffe 1/-)

Readers who aspire to become wireless operators on board ship or navigation officers in a modern air liner, or merely to be able to work a home-made short wave radio transmitter, must know and be able to use Morse. This booklet will serve as a very handy pocket tutor from which to learn the International Morse Code and the internationally agreed code of abbreviations known as the "Q" code. It also gives sound advice, illustrated with diagrams, on the choice of Morse key and receiving equipment with which to practise.

"A.B.C. OF CIVIL AIRCRAFT MARKINGS"

By JOHN W. R. TAYLOR
(Ian Allan 2/6)

The 1953 edition of this very useful handbook follows the pattern of earlier issues, and lists in alphabetical order British civil aircraft registrations corrected up to 20th March last. In addition to the registration letters it tabulates the type of aircraft concerned and the name of the owner or operator.

The same procedure is followed in regard to overseas

airline fleets, but these lists include only airliners serving the United Kingdom. Each list in the section is headed by the name of the airline concerned and a reproduction of its insignia. Typical examples of the types of aircraft listed in the book are shown in excellent half-tone photographs.

Finally there are notes on military aircraft registrations, a list of international civil aircraft markings, and specification details of 71 current types of civil aircraft.

"THE OBSERVER'S BOOK OF MUSIC"

By FREDA DINN, G.R.C.M., A.R.C.M., A.T.C.L.
(Warne 5/-)

This addition to the range of Observer pocket-size handbooks provides much valuable information for the newcomer to Music. Appropriately the first chapter is on Sound and how we hear it. This is followed by simple descriptions of the many different instruments—string, wind, and percussion—that make up a modern orchestra, with a wealth of interesting data on their origin and development. The organ also is dealt with in this way.

The second half of the book contains a very useful glossary of musical terms which the reader is likely to come across in concert programmes, short biographical notes on famous composers of the past and present, and an appendix explaining the musical terms "intervals" and "scales" employed in this book.

As always in these Observer handbooks, the numerous illustrations—some in colour—are a delight in themselves.

TRAIN PHOTOPIX

(Ian Allan 1/- each)

We have now received the third and fourth series of this publication. There is a pleasing variety in the subjects included in them. Prominence is necessarily given to B.R. Standard and similar modern locomotives, but there are old favourites as well. Indeed, here and there are some real veterans captured by the camera while still in service. Many different trains, passenger and goods, are shown, photographed from various and sometimes unusual angles.

There is a very good shilling's worth of enjoyment in each of these books for both real enthusiasts and younger readers.

"THE AIRPORT VISITOR"

(Penman Enterprises Ltd. 2/-)

As with previous issues, the 1953 edition of this annual publication is concerned chiefly with the airports at London, Northolt, Prestwick, Liverpool, Blackpool, Birmingham and Manchester. All of these have public enclosures and special facilities for the general public to watch flying and see for themselves how a busy airport works. In each case the location of the airport and the best way to get there are described briefly, and details are given of the airport buildings, the number and length of the runways, and the types of aircraft that may be seen there.

There are lists of other airports in the United Kingdom, and brief technical details of the types of air liners now to be seen at British airports. The special articles, which are always an interesting feature of this handbook, deal with the various kinds of ground aids to flying in operation at airports, and the transport helicopter and its promising future. The story is told of a flight from Hendon to Paris in July 1919, before the inauguration of the first scheduled airline service between London and the French capital. The aircraft Log Book lists in alphabetical order of registration letters, some 800 air liners operating from airports in the United Kingdom.



DINKY NEWS

By **THE TOYMAN**

My Continental Road Layout

MOST Dinky Toys enthusiasts start their collections with one or two cars or lorries, and at first simple games on the floor or table are sufficient to provide them with hours of pleasure. But the time soon comes when something more elaborate is wanted, to show the vehicles off to the best advantage on the one hand, and to give their owners greater satisfaction on the other. It is then that readers think of special Dinky Toys layouts. In making these delightful results can be obtained with a few easily obtainable materials, whether the layout is a simple affair, with a road running through a village, or a more elaborate arrangement representing a section of a busy town. A simple plan that can be carried out in a few hours will bring an ample reward. Those who like to do things really well of course have an unlimited field ahead of them!

Last month I showed you pictures of a simple racing track I had made for Dinky Toys racing cars. Since then I have been busy with a more ambitious scheme—a town layout. How successful I have been

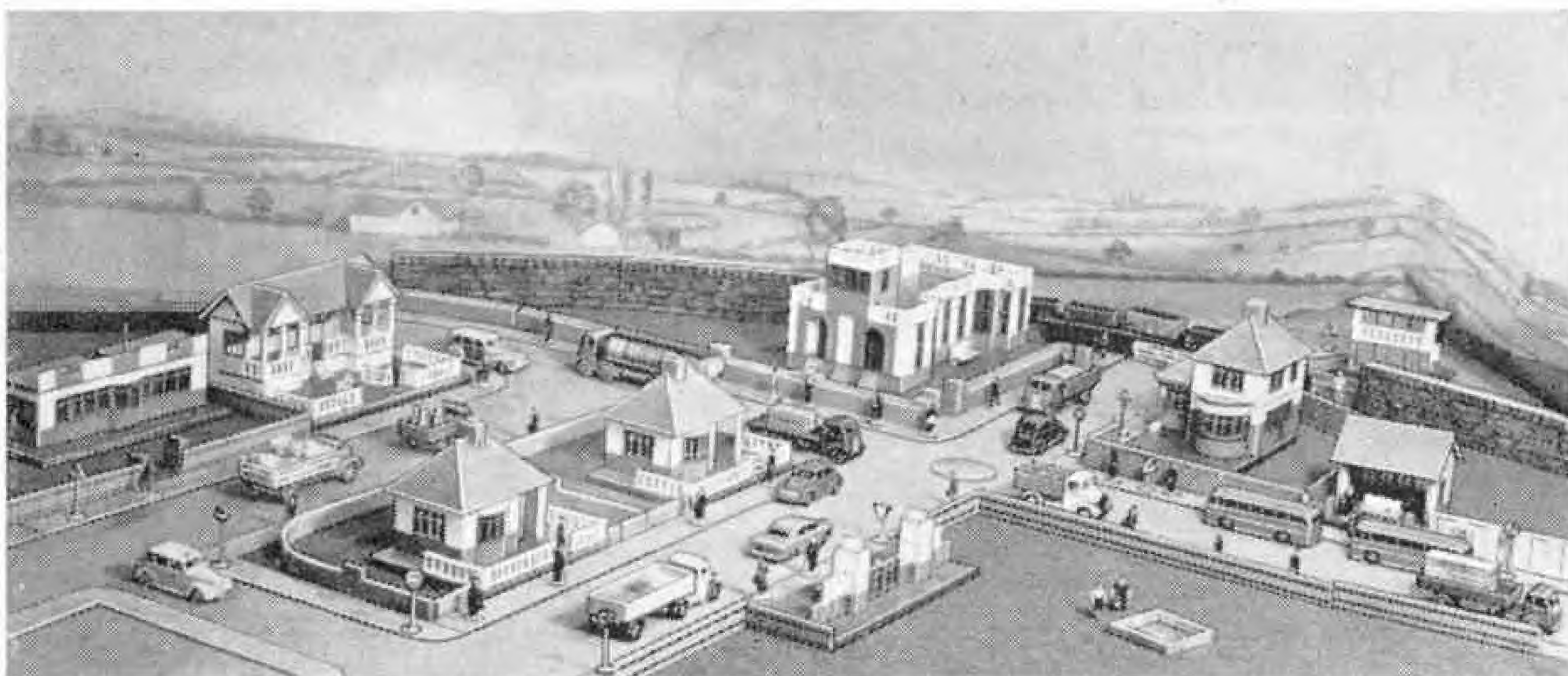
you will be able to judge from two of the pictures on these pages.

I had a special purpose in building this layout, but before going into that let us have a look at the layout itself. Buildings can be made quite easily from card, but the idea occurred to me of making use of Bayko parts. The makers of these joined in the scheme with real enthusiasm, and there is no doubt that the church, the

A busy corner of a Dinky Toys layout is seen in the illustration at the head of the page. This represents a town on the Continent, where vehicles run on the right-hand side of the road, and it shows how the new Dinky Toys International Road Signs can be used to give enthusiasts the pleasure, in imagination, of running their cars, buses and lorries on holidays spent across the English Channel.

school and the houses on the layout are the very thing for my small town, being nicely proportioned to the Dinky Toys on the roads. Even such less prominent items as the bus shelter and the park gates fit in beautifully, and add to the realism of the scene. The water of

the ornamental pond in the park is a small mirror, and its surround is made from miniature building blocks. Grass in the park and elsewhere is represented by sawdust dipped in green dye, and at a pinch the special material sold for ballasting miniature railways can be used. By the way, note how helpful the park and house gardens are. When buildings are too close together, and erected right on the roads



Another view of the Dinky Toys layout described on this page. The open spacing allows good views of the traffic.

themselves, it is difficult to see the Dinky Toys cars and lorries properly. The painted scenic background, quite a simple affair, is a great help in giving a finished air to the scene.

Now for my special purpose in building this layout. It was to introduce the new International Road Signs illustrated and described in last month's *M.M.* These are an exciting addition to the Dinky Toys series, for with them enthusiasts who have had the pleasure of travelling abroad, especially if their journeys have been made by road, can recapture some of the delights of such trips, and those who have not been so fortunate can enjoy in imagination some of the pleasures of foreign travel.

This will account for a feature that has probably puzzled many of you at first—the fact that the cars and lorries seen in

the pictures appear to be on the wrong sides of the roads. The explanation of course is that we are imagining a scene in France or some other Continental country where right-hand driving is the rule. This affects the placing of the signs, and it is great fun to work out how these should be placed in order to give the correct effect. You will all have seen the illustrations of the signs with explanation of their meanings, in the August *M.M.*, and with this knowledge you can examine each of the signs shown in the layout—and there are plenty of them—in order to see exactly how they guide the drivers of cars, buses and lorries. Try this, and see if I have placed the signs correctly. Let me know if I haven't!

I will send copies of a special leaflet on these signs to readers who have not yet obtained them and would like more information about them, with illustrations of their use.

Here is a real novelty for Dinky Toys enthusiasts, one that will enlarge their experience in an admirable way and widen their knowledge of road transport throughout the world. The signs actually are those used in France, which follow in general the scheme laid down by a United Nations convention held in Geneva four years or so ago. It was the intention that this scheme should be adopted in the various countries as circumstances permitted.



The Pullmore Car Transporter with a full load of Dinky Toys Austin "Atlantic" Convertibles.

The Old Market Cross

By Arthur Nettleton

FEW man-made objects in the English countryside are more familiar than our old market crosses. Hundreds of these can be seen by the tourist, and they range from mere stumps to elaborate canopied structures bearing coats-of-arms, inscriptions, and sundials.

Many are also worth seeing for the stories connected with them, and some have had curious histories. Examples can be found in small villages; others exist in the hurly-burly of busy towns.

Firstly, what is the general history of such relics, and how far back does the story go? They mark spots where open-air trading was carried on in bygone days. The idea of establishing a centre at which traders and customers could meet was adopted in England more than 1,000 years ago! Worcester is believed to have the

oldest market in the country, one having been set up there in the year 873 by order of King Alfred.

A cross—or a pillar surmounted by a cross—was erected near such sites as a symbol of fair trading, and at some places this column figured in strange customs. At Middleham, Wensleydale, the remnant of the old cross consists of two oddly shaped stumps, and it is said that traders used to seal verbal bargains by shaking hands through the space between the two pillars.

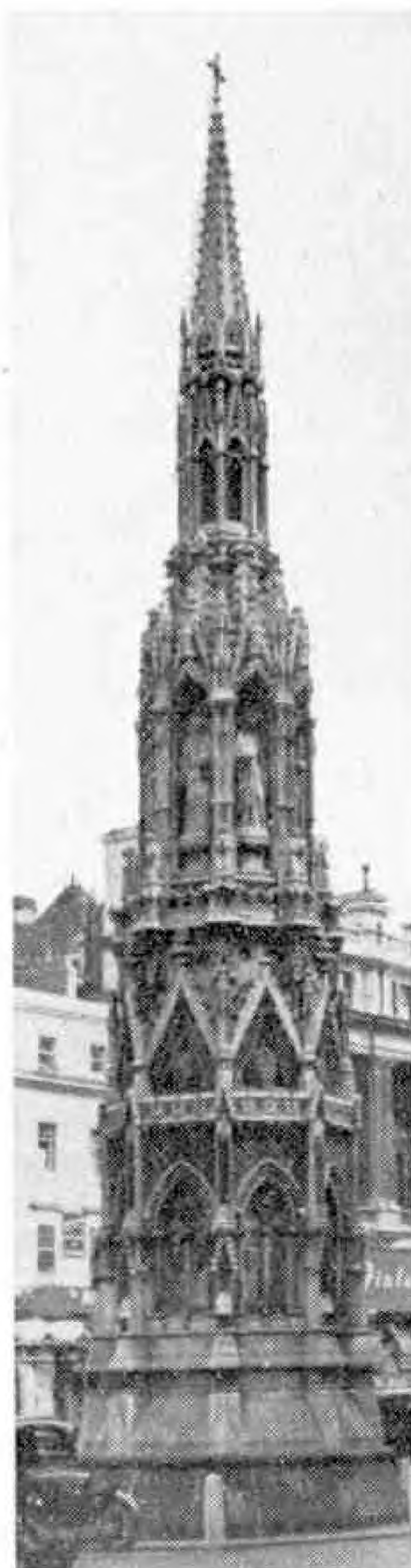
The reason why so many old market crosses stand in villages today, even though no market has been held there for a long time, is that in former times bad roads made travelling difficult. A large number of small open-air markets were therefore founded throughout the land, enabling people to buy the commodities they needed without venturing far afield.

When better roads developed, villagers were able to travel to the town markets and the village markets were abandoned, leaving the old village cross as the sole souvenir of the ancient custom. A fine, slender market cross is at Hathern, a Leicestershire village, and another stands at Linby, Nottinghamshire.

Hunmanby, near the Yorkshire coast, has its old cross on the village green to



Hunmanby, in East Yorkshire, was once a thriving market town and its ancient cross on the village green is a memento of that time.



Crosses do not always signify a market. Some are memorials like Charing Cross, London, a replica of one erected by Edward I in memory of his queen Eleanor and destroyed 300 years ago.



The monks of Cartmel Priory, Lancashire, owned the market in the town, the site of which is shown by the old pillar illustrated above.

remind tourists that the place was once a busy marketing centre, and a well-preserved obelisk at Cartmel, Lancashire, recalls that in olden days the monks of nearby Cartmel Priory were allowed to organise a weekly market there. The cross, indeed, stands just outside the old gatehouse of the Priory.

If you are cycling between Harrogate and Ripon, make the short detour to the charming village of Ripley, to see the venerable market cross there. Built on a base of five steps, it is about 500 years old, and Ripley, with only 250 inhabitants, was probably the last place of such a small population to have a weekly market.

Though the old market here was abandoned more than 200 years ago, it was revived for a short time in 1848, when the Nidd Valley Railway was being constructed. The navvies found it inconvenient to visit Ripon for their needs, so Ripley market was re-established temporarily in the cobbled square round the ancient market cross.

Some of our covered market crosses, which are usually found in country towns, are worth examining. A much-worn specimen beneath a giant roof supported on pillars is one of the sights of Oakham, Rutlandshire. Under this huge, umbrella-like structure vendors of dairy produce used to display their butter and eggs. A curiosity is the

four-sided sundial on top of the roof—how anyone could be expected to tell the time from it is a mystery, since it is too high for the shadow and markings to be seen easily.

Another remarkable canopied specimen is at Beverley. One of the best-designed in the North of England, it was set up in the 18th century by the town's two members of Parliament at the time. Its beautiful cupola roof is supported by ornamented stone pillars, and the carvings include not only the royal arms of England, but also those of France. The Beverley town crest, a beaver over a lake, adorns the structure, too.

Still another covered example is at Bingham, Notts., in the middle of the spacious village square. Actually, it is a rebuilt structure, having been re-modelled a good many years ago as a memorial to a local worthy, John Hanson. His name and the sentence *To be loved is*



The Market Cross at Bingham, Notts. It was re-built last century as a memorial to a local worthy and is one of the many examples with canopies.

better than all bargains are carved round it.

Kirkby Lonsdale, in Westmorland, has two market crosses, one an unprotected pillar surmounted by a stone ball and the other a six-sided affair with a roof. The most interesting thing about the covered example is that it is an almost exact replica of the market cross at far-away Malmesbury, Wiltshire.

A comparatively plain market cross with a story was re-erected at Keighley, Airedale, in 1948. After serving in its rightful way for many generations, it was removed to a private estate last century, the estate owner having found it in danger of being broken up and used as building stone. Later, it was given a home in a museum, but five years ago the town council decided to set it up again on a site near the spot it had originally occupied.

Acquiring market crosses seems to have been a hobby of wealthy persons at one period, for there are further instances of such historic relics being removed to private parks. The present canopied market cross at Mountsorrel, Leicestershire,



The Keighley Market Cross, which was re-erected in 1948, was once on private property and more recently in a museum.

was given to the inhabitants by a local landowner in exchange for their older cross. The latter was then transferred to the donor's estate not far distant.

If you seek the tallest market cross in the North of England you can find it at Ripon. It is a gigantic tapering column, bearing a gilded representation of the famous Ripon Horn, the instrument on which the Wakeman still blows four blasts at nine o'clock each night in the market square. In olden days the echoing blasts were intended to guide belated travellers to the safety of the town.

As to inscriptions on market crosses, the oddest in Britain must be the one at Devizes. It consists of a long account of a dispute between four market women in 1753. One of the women is recorded as having said *May I drop dead if I'm not telling the truth*. A moment later, the inscription tells us, she dropped to the ground and expired.

In general our market crosses receive comparatively little attention from the tourist, yet they are absorbing relics in many ways, and a halt to inspect them is often well-rewarded.



The old market pillar at Kirkby Lonsdale, Westmorland. Almost 50 years ago it was superseded by a more elaborate structure modelled after the one at Malmesbury, Wiltshire.

The World's Largest Telescope

By the Editor

"STARLIGHT is falling on every square mile of the Earth's surface, and the best we can do at present is to gather up and concentrate the rays that strike an area 100 inches in diameter."

These words were written 25 years ago by the famous American astronomer George Ellery Hale. He was speaking of telescopes. He had previously played a great part in the construction of four successive giant telescopes, each larger than its predecessor, and the telescope that collected the light falling on an area 100 in. in diameter was the latest of this series. This wonderful instrument is mounted in the observatory on Mount Wilson, Pasadena, which is not far from Hollywood, and there from its beginning it had been directed by George Hale.

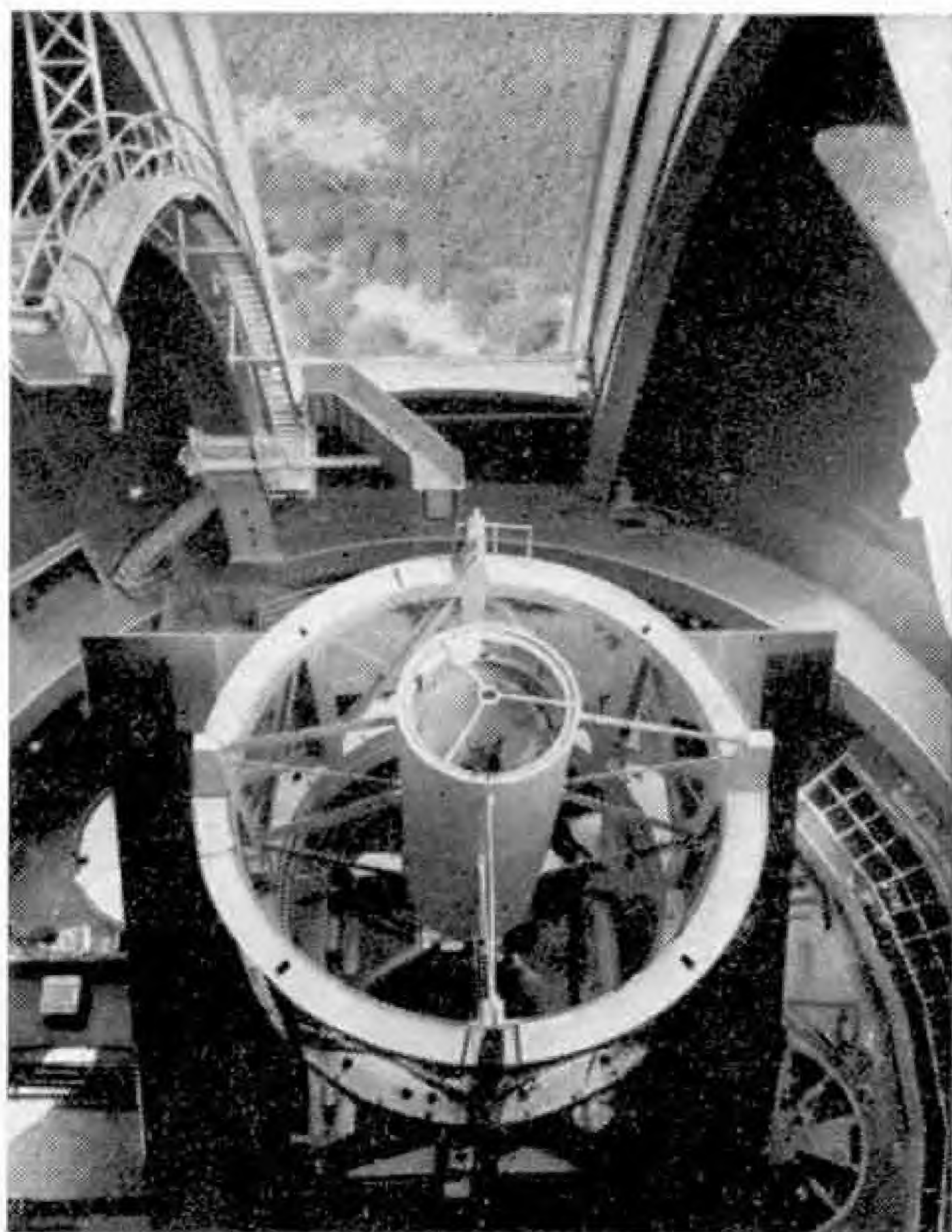
But Hale was not satisfied with this giant. He wanted more light and dreamed of even more powerful telescopes. Recently I read the story of how his dreams were realised.* The difficulties were tremendous. First came that of finding the enormous amount of money required, more than \$6,000,000 dollars for the telescope itself. Then there was the task of casting a mirror twice the diameter of the largest that until then had been constructed—and that had been troublesome enough to produce! Engineering problems too were set by the mounting of such an enormous instrument; although the telescope would weigh many tons it had to move easily almost at a touch, and with almost inhuman accuracy if it were to record the heavens as it was intended to do.

The story of how this was done is thrilling. The Rockefeller foundation eventually agreed to provide the money for construction, another enthusiast planned to endow the telescope in order to provide operating expenses, and astronomers, engineers, glassmakers and others joined in the design and construction of the mighty telescope that he had in mind.

But it was not till about 20 years after the first steps had been taken that the telescope was completed. In the meantime George Hale himself had died. He had seen the mirror, the production of which had taken many years of work and had involved many heartbreaking failures that made changes in plan necessary. He had listened eagerly to reports of work on the mounting of the telescope and on the progress of the construction of the great observatory in which it was to do its work, and although he knew he would not live to see it finished he was assured that it would become a living reality. When the time came for its dedication on 3rd June 1948, and the great telescope was put through its paces before a great audience on the top of Palomar, the mountain in southern California chosen for its home, there was wild applause when it was announced that the great instrument was to be known as the Hale Telescope.

The reader of the book is able to follow the story of this astonishing enterprise through every stage, and to share in the troubles and disappointments that marked its construction as well as in the ultimate triumph.

Perhaps the greatest interest lies in the story of the casting of the enormous mirror, 200 in. or nearly 17 ft. across, that gathers the light from the stars and directs it on to the photographic plates with which the astronomer of today does the greater part of his work. The first plan was to make it of fused silica. This was almost an ideal material, because it has a very small



Looking down on the Hale Telescope, the mirror of which is nearly 17 ft. in diameter. This is one of the many illustrations in the book reviewed on this page.

rate of expansion, but at that time the largest disc of fused silica that had ever been constructed measured only 22 in. across, and there was no exact knowledge of methods of glazing and annealing, the process of cooling the disc slowly to remove strain.

Experiments were started with high hopes. Larger discs were cast, the idea being to climb steadily upward with first a 60 in. disc and then one of 120 in. diameter, but one trouble after another was met, the costs mounted astronomically, and in the end, after years of arduous work with hopes and disappointments alternating, the idea of casting a mirror of silica had to be abandoned.

Then an entirely new start was made with Pyrex, a special form of glass that had been developed at the Corning Glass Works, but again there were troubles, and in the end it was necessary to cast a second 200 in. disc before a really satisfactory result was achieved. Even then there were alarms. While the white hot disc was shut up in the igloo-like container in which it was to cool slowly, a process that was to take almost a year, the river that flowed by the Corning Glass Works began to rise. Desperate efforts were made to keep out the flood waters by building a tile and wood dyke, reinforced by sandbags and clay, but the water continued to gain and in the end affected the current for the heaters used to control the very slow cooling. For three days the disc was cooling down at a rate greater than had been arranged for. Fortunately the break did not cause any serious damage. Wrapped in rubber sheeting and fitted in a specially built steel box, the disc was then carried across the Continent to California by rail, and the further slow process of grinding its surface to shape and mounting it in its great tube on Palomar were eventually carried through to completion.

The story is a dramatic one, told here in full detail, and readers will be absorbed in the story of the creation of this fantastic telescope, which will open entirely new worlds to the astronomers of the future.

*In *"The Great Palomar Telescope,"* by Helen Wright. Published by Faber and Faber Ltd., 12/6 net.

Railway Notes

By R. A. H. Weight

New Rolling Stock for British Railways

The 1953 programme now in hand provides, subject to the receipt of the necessary materials, for the construction of 288 locomotives. These include 209 steam, 1 S.R. diesel-electric main line, 51 diesel-electric shunters of the new standard type, 14 diesel-mechanical shunters and 13 electric locomotives for the Sheffield-Wath-Manchester services, which will be operated before very long with the new form of traction. The first ten class 9 2-10-0 heavy freight engines will be among 150 B.R. standard locomotives; 59 on order will be of existing Regional types.

A large proportion of the 1,448 carriages to be built will be of the latest standard all-steel corridor pattern. Comprised in the wagon building scheme are 1,200 with capacities ranging from 12- to 42-tons for carrying steel, now being produced in record quantities, and 2,324 trucks having shock-absorbing gear to reduce risk of damage to contents, together with special vehicles designed to convey heavy loads or specialised types of freight.

Western Tidings

New 0-6-0Ts of the heavy pannier type built by Messrs. W. G. Bagnall Ltd., Stafford, were recently placed in service, numbered 8436-9. Locomotives condemned included the Saint 4-6-0s Nos. 2937 *Clevedon Court* and 2945 *Hillingdon Court*; the 4-cyl. Star No. 4052 *Princess Beatrice*; and Nos. 3033 and 3047, of the former G.C.R. 2-8-0 R.O.D. type.

Cafeteria cars noted running in W.R. special trains were of the former L.N.E.R. and Southern origin, but refitted and allocated to the Western Region; another was a standard G.W.R. 57-foot dining car. Several ex-Great Northern Railway 8 and 12 wheeled restaurant cars have been adapted for cafeteria service on various British routes as required.

During several week-ends last spring, owing to engineering work on the main lines between Calvert and Grendon Underwood Junction, Eastern Region (G.C.) passenger and parcel trains were diverted to W.R. metals between Woodford Halse and Princes Risboro' by way of Banbury, Bicester and Ashendon Junction. Parts of the West of England main line also were closed on account of heavy repair work between Westbury and Taunton, trains running via Bristol or other alternative routes.

When I was watching and recording the traffic and locomotive working along the busy Paddington-Reading stretch on a July afternoon nearly all the up express and main line trains were running early, or at any rate quite punctually. *Barbury Castle* ran into Paddington exactly to time at 2.30 p.m. after the 60 m.p.h. run up from Swindon start. The up *Torbay Express*, headed by *Kilgerran Castle*, passed Ealing at about 70 m.p.h., and I saw the *Cornish Riviera* through Slough at rather more than that speed, with 12 coaches in charge of *King Henry VI*. Both trains had time well in hand.

The up *Bristolian* was 4½ min. early at Reading,

coming through the main platform line with its detached slip carriage following not far behind, to come smoothly to rest as the express disappeared towards London, hauled by the British gas-turbine locomotive No. 18100, then making two return trips from London to Bristol daily.

At Reading station, which has junctions and many crossings at each end, one can watch very busy and interesting series of fast and slow train movements, on an ordinary weekday evening for instance. Southern Region trains, steam and electric, to and from their adjacent terminus are also visible. There are two sets of connecting tracks between the lines of the two Regions.

It is understood that more of the principal express trains are shortly to be accelerated in daily running. That there is a considerable margin when conditions are favourable, and enginemen determined, was proved by a report reaching me of a 22-min. late start by the up *Red Dragon*, South Wales express, converted into a practically punctual arrival at Paddington with a heavy, 13-coach train running non-stop from Newport, Mon. This was hauled by B.R. 4-6-2 No. 70026 *Polar Star*, in charge of a Cardiff crew. After surmounting various climbs, the 100 miles in from Badminton and the 77½ miles from Swindon were reeled off respectively in about 88 and



Eastern Region No. 61273 on loan to the Southern Region, entering Bromley South with an up Ramsgate train. Photograph by B. C. Bending.

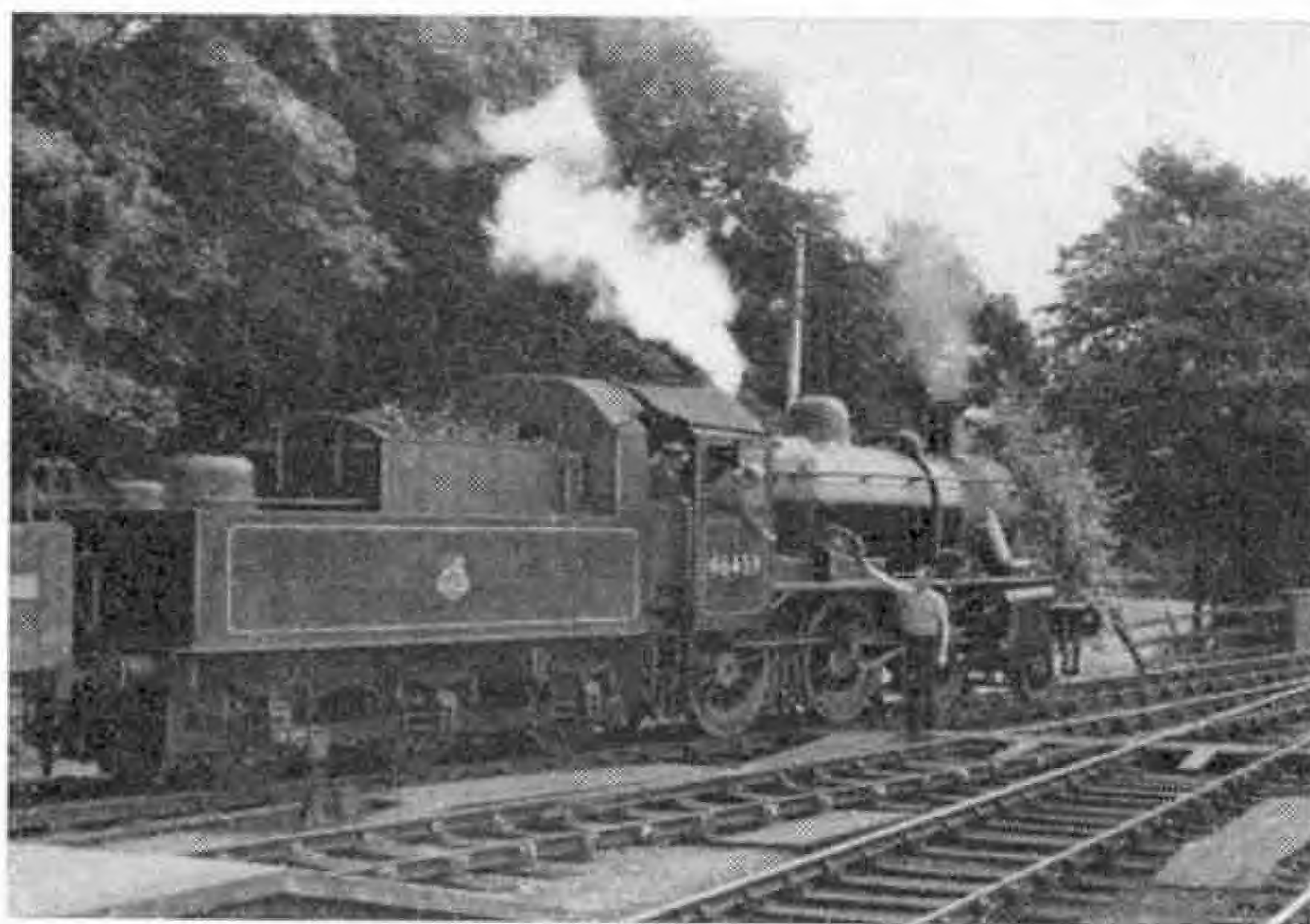
67 minutes! I saw *Polar Star* on this turn next day, returning with the 3.55 p.m. from Paddington; another *Britannia*, *Venus*, had gone down on the 3.30 West of England express.

Special Trains for Railway Enthusiasts

More of the popular special excursions or tours over unusual routes have recently been carried out.

The Gloucester Railway Society's 3-coach train, carrying special roof boards, visiting Andover and Swindon travelled over the former Midland and South Western Junction line, hauled by the now rather unique 2-4-0 No. 1336, formerly owned by the M.S.W.J. The W.R. 4-4-0 locomotive No. 9023 completed the journey from Swindon. No. 9000 of the same class made a long run with the Stephenson Locomotive Society's special from Birmingham, including the same junction line by way of Cheltenham, Swindon, Andover, Basingstoke, S.R., Reading, Oxford. Locomotive Works and Shed visits were included.

The Railway Correspondence and Travel Society's specials have included a London-Exeter round trip, going down from Waterloo behind L.S.W.R. 4-4-0s class D15 No. 30464 as far as Salisbury and T9 No. 30711 thereafter. Both produced some high speeds. A break was made at Axminster to travel over the



Catching the tablet in picturesque surroundings at Keswick. The engine is one of the light 2-6-0s of the L.M.R. class 2 specially developed for light branch line and local use. Photograph by A. B. Thornton.

picturesque Lyme Regis branch with remarkable double-headed tank locomotive power of ancient vintage—a Terrier 0-6-0 and an Adams 4-4-2! From Exeter back to Paddington via Bristol the engine was Star No. 4056, *Princess Margaret*.

A novel short tour from Eastleigh included travel through Southampton Docks behind U.S.A. type 0-6-0T No. 30062, as well as a journey down the Fawley branch in charge of *Earl of Mount Edgcumbe*, an acquired S.R. 0-6-2T from Plymouth.

An elaborately organised exploration of the High Peak Railway sponsored by the Stephenson and Manchester Locomotive Societies provided many thrills, with travel in open wagons, climbing the most precipitous gradients on foot and riding behind two veteran ex-North London Railway 0-6-0Ts, Midland and other locomotives, partly along remote mineral lines.

Well-known Drivers Retire

Driver J. Burgess of King's Cross shed, who entered the service of the G.N.R. just over 50 years ago, made his last journey before retirement working the *Flying Scotsman* into King's Cross recently on streamlined *Pacific Golden Fleece*. He had been a driver for 30 years, taking charge of all the principal long-distance expresses worked from his depot, as well as Royal trains, the E.R. locomotives running on the Western Region during the engine exchange trials of 1948 and the last run of No. 62822, the final G.N.R. Atlantic to remain in service, in November 1950, to name only a few of his special occasions.

An equally well-known figure in the senior driving ranks at Camden depot, L.M.R., was Harry Byford, who has retired with 47 years' service to his credit. He has worked Royal trains many times, has been running regularly to Carlisle or Blackpool in recent years,

and took a notable share, with 4-6-2 *City of Bradford*, making a number of good runs on strange routes during the interchange of locomotives and crews mentioned above.

Mr. Byford's last run was with No. 46168 *The Girl Guide* of the Royal Scot class from Blackpool to Euston. From Crewe non-stop to London the load was 15, weighing nearly 500 tons full. After a 2 min. late start, he was slightly early passing Rugby, at walking pace owing to signals. Some high speeds after permanent way and signal checks before Tring would have secured a punctual arrival had not a dead stand occurred outside Euston. Net time equalled the 165 minutes fastest schedule for 158 miles.

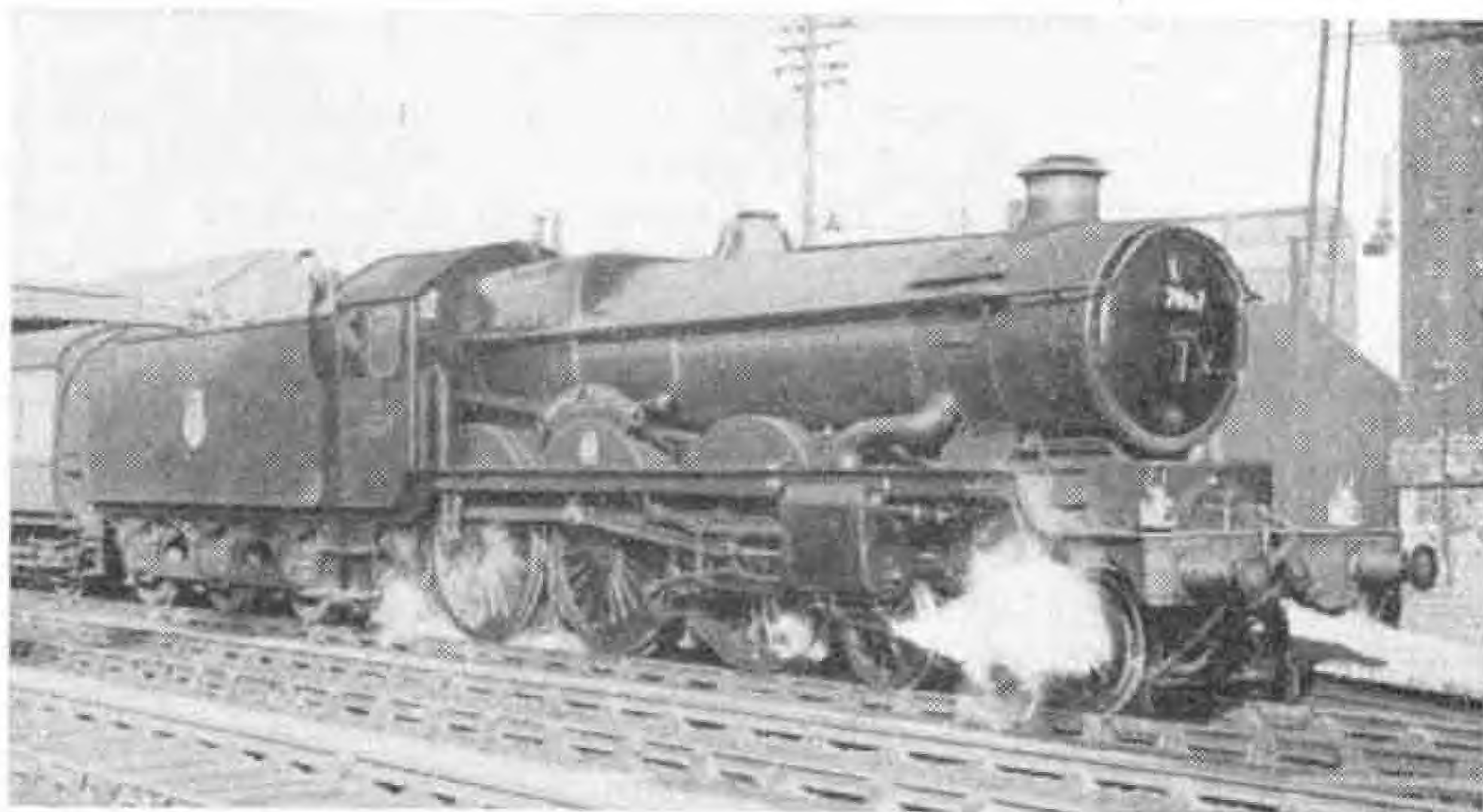
Elizabethan Exploits

During the summer season the advance portion of the *Flying Scotsman* makes what is believed to be the longest regular non-stop run in the world—almost 393 miles in each direction between London (King's Cross) and

Edinburgh (Waverley). The A4 Pacifics performing this exacting duty are usually stationed either at King's Cross or Haymarket, and their crews change half-way by means of the corridor tender. As most readers will be aware, this service for 1953 has been named *Elizabethan*, to mark Coronation Year, instead of *Capitals Limited*, and its timing reduced to 6½ hr.

During the opening week at the beginning of July the southbound *Elizabethan* reached King's Cross over 11 min. early, creating a new record for the non-stop journey and averaging 60 m.p.h. all the way, including gradients and a number of slacks and slowings. The engine was No. 60009 *Union of South Africa*. The train weighs just over 400 tons including passengers, staff and luggage, the 11 vehicles including air-conditioned coaches, dining and buffet-lounge cars.

The first northbound run, behind No. 60028 *Walter K. Whigham*, was characterised by very fast running and an early arrival. More reports are coming in at the time of writing, especially from the King's Cross end, of further time gaining performances, notwithstanding the extremely fast schedule for so long a journey. Some apply similarly to the *Tees-Tyne Pullman* and other accelerated trains.



Castle class locomotive No. 7007, appropriately named Great Western and carrying that company's coat-of-arms, leaving Oxford for Paddington. Photograph by Dr. G. D. Parkes.



Giant Trailers and Tractors

Road Transport of Loads up to 200 Tons

NOTHING on our roads creates more excitement than the appearance of a giant trailer, with an outsize load, such as a transformer or even a locomotive on its way to the docks, hauled slowly and majestically along by a powerful tractor or lorry. The trailer shown in the illustration at the head of this page certainly attracted eager crowds during the test run made with it, and the interest it aroused would be all the greater for those who knew that this 120-ton transporter, with its Mighty Antar tractors, was intended for use in the Snowy Mountains in New South Wales. The cavalcade undoubtedly formed one of the largest and heaviest road trains ever constructed in this country for export. The trailer alone is 67 ft. 8 in. long, and the combined overall length for tractors and trailer is more than 131 ft.

In the Snowy Mountains district of New South Wales the waters of the river system are being harnessed for the generation of electric power and also for irrigation. An article describing this project appeared in the *M.M.* for May 1951, when the scheme was in its earliest stages. Altogether seven major dams and sixteen power stations are to be constructed, and 86 miles of large diameter tunnel also will be bored, while nearly 500 miles of race-lines will be cut along the mountainside to pick up streams and lead their water to reservoirs. Hundreds of miles of roads and tracks too will be built, in precipitous country rising in places to 7,300 ft.

Preliminary estimates put the cost of this scheme at £225,000,000. The ultimate

generating capacity of the stations will be 3,000,000 kW, and over 2,000,000 acre feet of water will be available for irrigation in the Murray and Murrumbidgee Valleys. The project indeed is comparable with the great scheme that has turned the Tennessee Valley, in the United States, into a gigantic source of hydro-electric power.

The construction of the Snowy Mountains power stations will involve the transport of several units of indivisible machinery weighing well over 100 tons, and it is for this duty in particular that the road train has been built. The trailer,

capable of carrying loads up to 120 tons in weight, has been built by Cranes (Dereham) Ltd., and the Mighty Antars are the products of John I. Thornycroft and Company Ltd. The giant tractor too has been illustrated and

described in the *M.M.*, in the issue for August 1950. Its power unit is a Meteorite 150 b.h.p. 8-cylinder oil engine, and its specification includes power-assisted clutch operation, steering and braking. The all-metal cab is fitted with an electric fan, a Clayton-Dewandre heater, and a windscreen de-froster for safe driving in different altitudes throughout the year. Another interesting feature is a Darlington type 70 power-driven winch with a pull of 50,000 lb., together with 350 ft. of steel cable one inch in diameter. These are carried for use in hauling the trailer through fords, or in extricating the tractor itself if it should become bogged.

The trailer follows the usual lines of the many transporters of this kind that

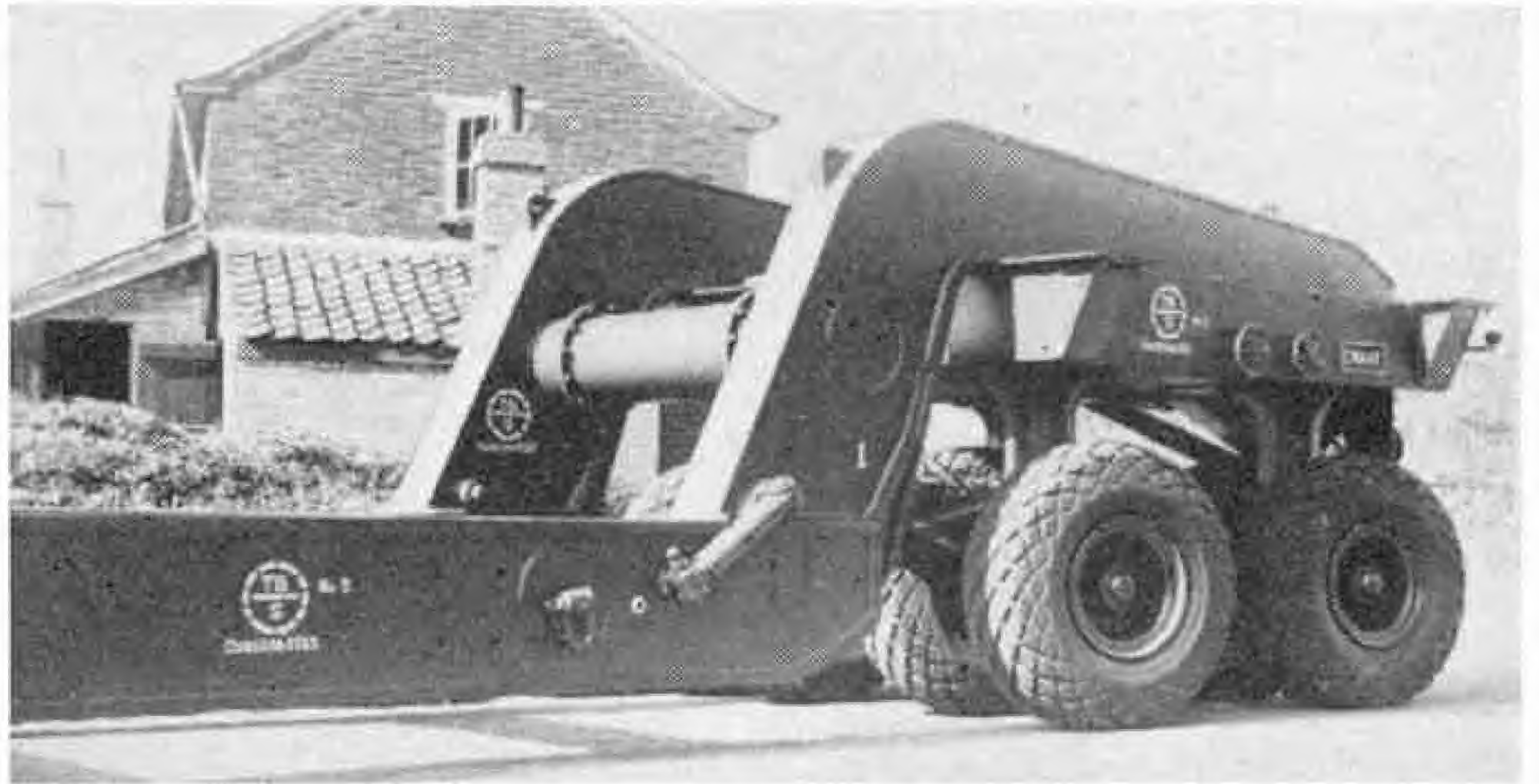
The 120-ton trailer to be used in the Snowy Mountains, New South Wales, with two mighty Antar tractors on a test run with a load from Birmingham to Newport. Photograph by courtesy of John I. Thornycroft and Co. Ltd.

have been constructed by Cranes (Dereham) Ltd., with swan necks, carried on the front and rear bogies, supporting between them the low loading frame. The frame can be disconnected from the swan necks, and lowered to the ground to make loading or off loading easier, and it can be set at various widths to accommodate the particular load to be carried. An alternative frame provided consists of two main members that rest on the top of the bogies, to which they are bolted when required, the swan necks then being disconnected.

Each bogie rides on eight wheels with giant 16.00 by 20 tyres, inflated to a pressure of 100 lb. per sq. in. These are grouped in pairs mounted on the ends of four short axles, each of which is pivoted on the centre to allow individual movement when ground irregularities make this necessary. Above the centre of each axle is a hydraulic ram, by means of which the load can be raised or lowered, so that it can clear overhead railway arches or pass over humpbacked bridges when these are met. The rams can also be made self-adjusting to allow the flow of oil from the front cylinder to the rear, or

in the opposite direction, when this is needed to equalise the loading on the tyres.

Both bogies can be steered in any direction at the same time, and the four axles of each can be turned through a right angle in either direction by means



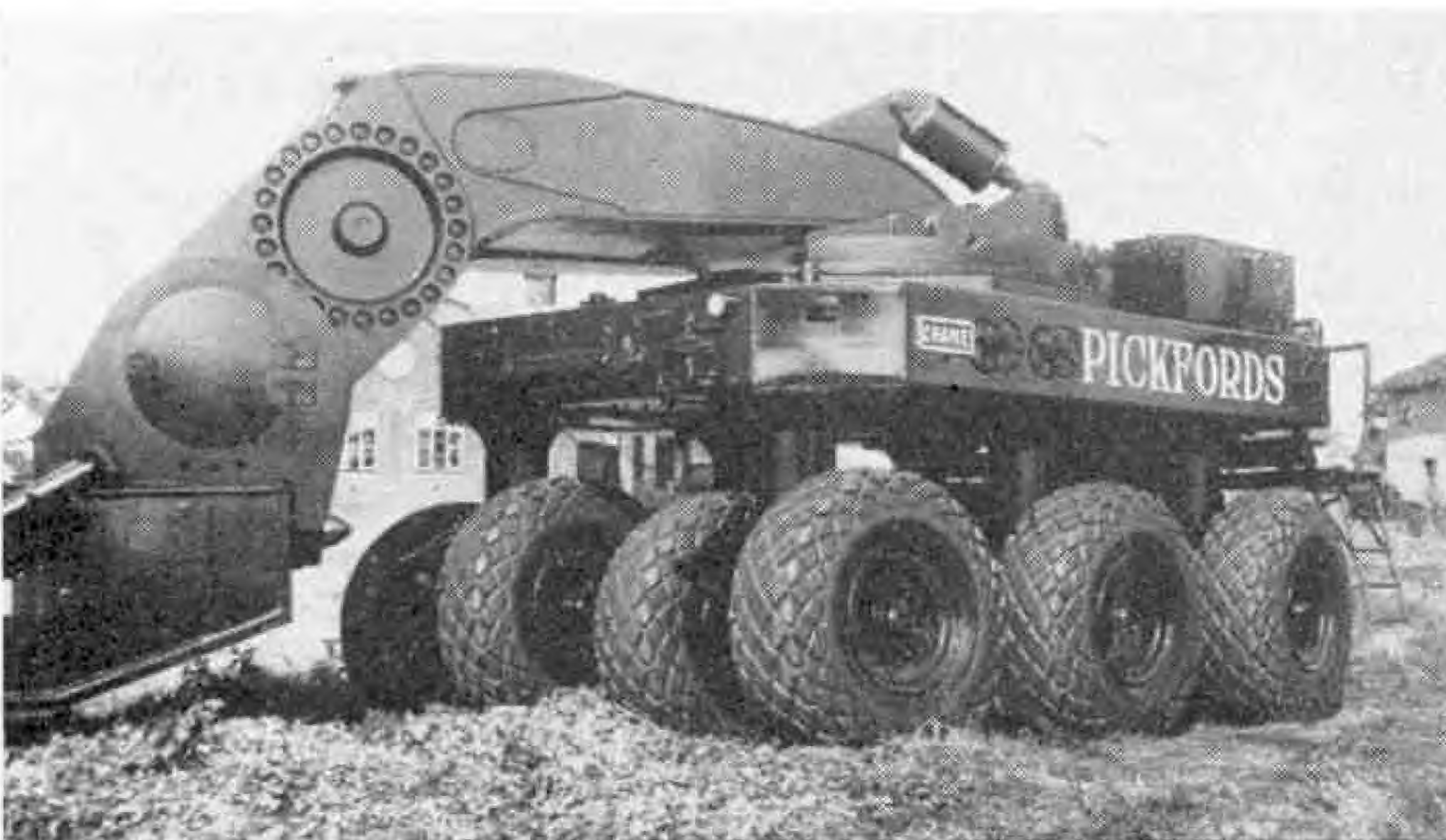
The rear bogie of the 120-ton trailer, with the swan neck that connects it to the members of the frame. The photographs on this page are reproduced by courtesy of Cranes (Dereham) Ltd.

of a second hydraulic system or by drawbar control. Generally the rear end will be steered separately by a man riding on a small platform at the extreme rear. The front ends are steered as well as towed by a triangular drawbar connected to the tractor; the rear bogie is steered either by hand control, as already explained, or by means of a tractor.

Each bogie is equipped with a high speed pump capable of delivering fluid for hydraulic steering or axle levelling, at a

pressure of 1,750 lb. per sq. in. These units can be brought into use in a few seconds when required.

In spite of its immense size the trailer can actually be turned round within a circle of about the equivalent of its own length. Moreover, because of the wide angle through which the axles of each bogie can be turned, it can be



A bogie and swan neck of a giant among trailers, the Crane 200-ton transporter, the largest of its kind in the world.

moved bodily sideways by the tractors.

A giant transporter of this kind, with its enormous load, must be kept under complete control, and with this in mind Girling brakes 15½ in. in diameter and 7 in. in width are fitted, one pair to each axle. They are controlled by air cylinders worked on a special Bendix Westinghouse two pipe line system, and all sixteen wheels can be braked from either end at will. The mechanical application of the brakes is made by hand wheel action.

The road test of the train took it from Birmingham to Newport. The tractor had previously been driven to Dereham for coupling up to the trailer, which was then hauled to the G.E.C. Works at Witton, Birmingham. There a 100-ton turbo-alternator, one of six built for the British Electricity Authority, was loaded on the trailer and the second tractor was coupled behind to complete the road train, the total gross running weight of which during this test was 223 tons. The route followed provided opportunities for negotiating city traffic, narrow bridges and several hills with steep gradients.

More recently Sheffield was the scene of the start of the greatest road transport task ever tackled. This was the conveyance by road to Liverpool of a huge steel casting weighing 164 tons, the heaviest ever exported at the time, and this feat in turn was later eclipsed by the transport of one weighing 180 tons! For these immense loads a giant trailer 50 ft. long, and capable of carrying loads of up to 200 tons was used.

This trailer too was built by Cranes (Dereham) Ltd. The general lines follow those of the Snowy Mountains trailer already described, but instead of there being eight wheels to each bogie there are twelve, making 24 altogether. These are arranged on three rows of axles. Because of this turntable steering is necessary,

and the upper portion of the turntables are made to take the bearing bosses of the swan necks. It is perhaps worth mentioning that the rocker pins connecting the swan necks to the turntables oscillate in self-aligning roller bearings, and these are capable of taking a load that may be in the region of 120 tons for each turntable.

The steering of the trailer has been arranged with a view to avoiding tyre scrub at any time. The wheels of the middle row of each bogie are not steered, while the axles of those at the front and rear when turning point to a common centre, which is in fact the centre of the arc described by the bogie.

The wheels of the front bogie are steered by the movement of the tractor in a comparatively simple manner, the drawbar operating through a system of splayed levers. With such a long vehicle the



Hauling a casting weighing 164 tons on the Crane 200-ton trailer. This photograph, reproduced by courtesy of Kemsley Newspapers Ltd., shows how the swan necks rest on the turntables of the bogies.

steering of the rear bogie brings special problems, however. For normal travelling an ideal arrangement is that the rear bogie shall follow the front bogie, and this of course is essential on winding roads, or for negotiating awkward bends without too much delay. To achieve this a massive king pin is arranged at the centre of the rear bogie turntable, and this is a fixture with the upper turntable, so that it remains in constant relation to the main members. A massive lever is attached to the underside of the king pin, and this is connected by a special push-pull bar to the system of steering levers on the bogie.

On the road drivers and steersmen keep in touch by a loudspeaker telephone system.

Photography

Outdoor Portraits

By E. E. Steele

I HAVE often warned against taking deliberately posed photographs because of the likelihood of getting those dreadful unnatural and self-conscious expressions, so often met with in the family album, and described as "likenesses," which they seldom are! There are times, however, when a posed picture is



Portrait of a photographer.

required, and there is no reason why the result cannot also be natural and pleasing.

The first thing to avoid is the stiff, standing figure, with the awkward "I'm having my photograph taken" expression. Try posing the subject in a natural manner. Father may be taken leaning on the garden gate, probably with pipe aglow if he is a smoker, as this will give him a natural, relaxed pose, and enable him to forget to put on that forced photographic expression to which I have referred. He could, with advantage, be asked to turn his head so that he is looking slightly away from the camera, what is often called a "three quarter" view of the face. Most people can manage this angle much better than staring straight at the camera, which, personally, I find most difficult to do, being far short of handsome!

Sister, on the other hand, can pose much more naturally, having female grace and charm which may help her to face the camera with confidence knowing, of course, that she is pretty to look at. A girl almost always photographs well with an animal, preferably a dog, and can be seated on the grass against a rather darker contrasting background. Light clothing will photograph well in such a pose, but resist all attempts to snap her amongst the flowers in the garden! This might look well in colour, but can be very spotty and unsuitable in black and white.

Children are born actors, and can be taken naturally if they are not asked to look straight at the camera. A good picture



Gwyneth obviously enjoys being photographed! The illustrations to this article are from photographs by the author.

should show a child happy and smiling. Babies can be "snapped" with little trouble if someone takes their attention with a toy, and the photographer is ready for that expression which is "just right."

Soft lighting, a characteristic of September, is best for outside portraits, and hard sunshine should be avoided. A medium speed panchromatic film is the best to use, and development should be on the soft side for a nice well-graded negative, without harsh contrasts. Light subjects photograph well against darker backgrounds, and a darkened doorway is very effective if the subject is standing out in the light.



A sisterly chat.

On the Road

By J. Dewar McIntock

THE appearance of this issue coincides with the end of the summer season of motor racing, so naturally that is the subject upon which I wish to "spread myself" this month. I wish I could report that Great Britain had been the grand victor in this year's motor sport, but I cannot sincerely hold that view. Yes, I know all about Le Mans, and I agree that our sports cars have shown the world a thing or two, but that is not enough. There is a little business called Grand Prix racing, *and we have not shone*. Mike Hawthorn—ah yes, *he* has shone. He is indeed a very bright star in the automobile universe. But he has driven an Italian

steeplejacks! William Lyons, of Jaguar fame, David Brown, of Aston-Martin, and Alfred Owen, now owner of the B.R.M. outfit, are names that matter, and we need a few more like them.

Now, the position in road racing was perhaps perfectly illustrated in the British Grand Prix at Silverstone at the end of July. Those of you who study such things will remember that this took the form of a ding-dong battle between the rival Italian Ferrari and Maserati stables, while a separate tussle went on between Connaughts, H.W.M.s, Coopers, etc.—a long way behind! In the end, the placings were: "Bert" Ascari (Ferrari), Fangio

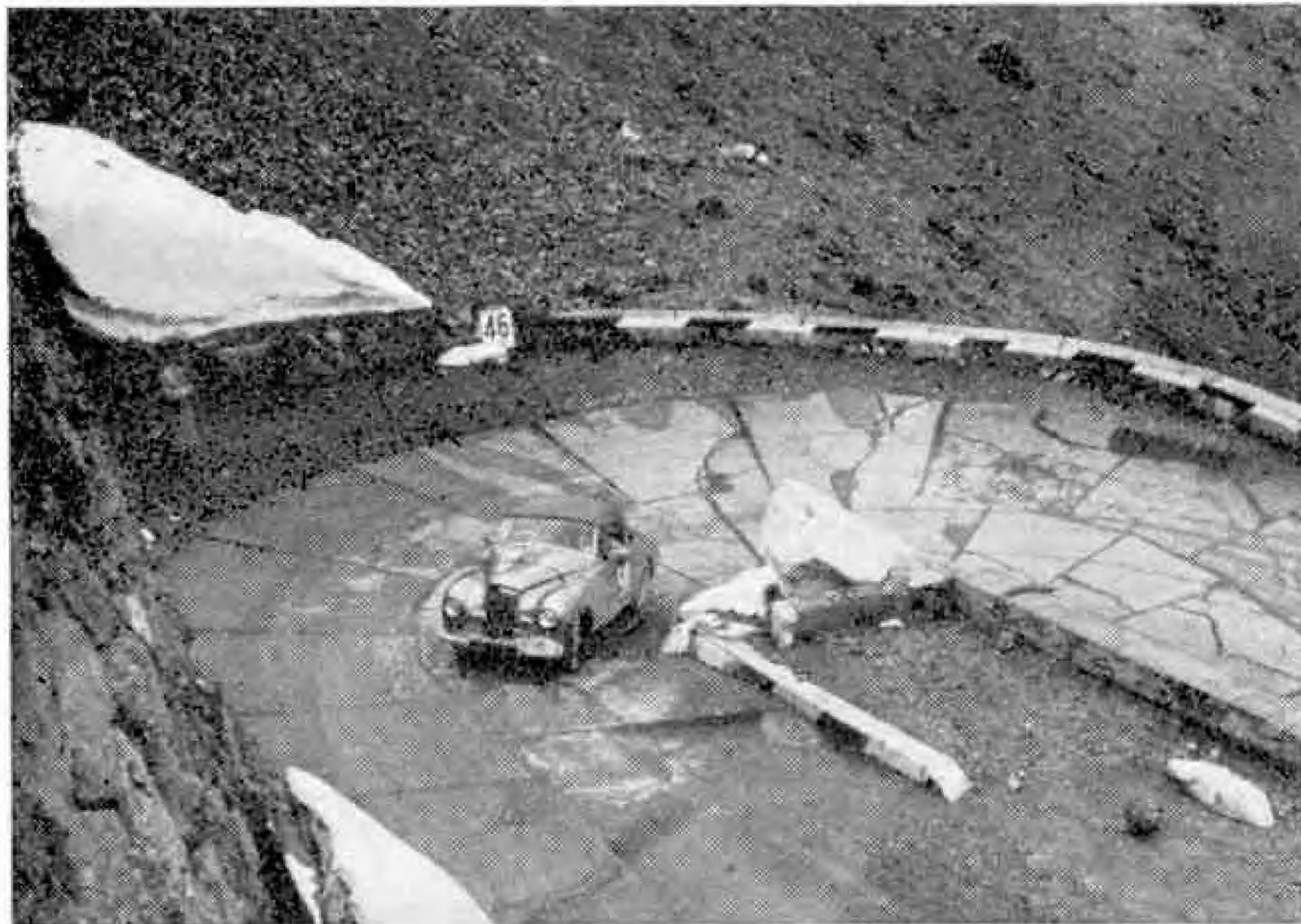
(Maserati), Farina (Ferrari), Gonzalez (Maserati), Hawthorn (Ferrari), Bonetto (Maserati), Bira (Connaught), Wharton (Cooper-Bristol), Peter Whitehead (Cooper-Alta) and Rosier (Ferrari). Ascari led throughout, and was increasing his lead all the time. Hawthorn had the ill-luck to gyrate wildly at more than 90 m.p.h. on the grass at one stage, but brilliantly kept control.

That race was for Formula II cars, up to 2 litre capacity. At the same meeting there was a Formule Libre race in which the Formula I, old style, B.R.M.s competed

against all sorts. They pulled off a second and third, but a Ferrari won.

This, then, is the kind of thing that has been going on in the Grand Prix sphere... works-sponsored Italian cars, driven by Italians, Argentinians and an Englishman, showing clean heels to virtually garage-built English cars driven by Englishmen with limited means.

In sports car races, things have been brighter, because a few manufacturers in a big way of business have taken an interest. Even so, there is no room for complacency. The continentals are



John Fitch in his Sunbeam Alpine, cornering on the road over Stelvio Pass, which rises to a height of 9,080 ft. He was a winner of the Coupe des Alpes, awarded to competitors who complete the gruelling six day run without loss of marks.

machine, for an Italian factory . . .

Do not get the wrong impression, though. I do not at all want to belittle our capabilities, and I have great hopes of a British come-back when next year's Formula 1—remember, 2½-litre unblown or 3-litre blown?—gets under way. Further I will be the first to agree that our drivers are second to none. What we need for our motor racing, and what we have needed ever since the great Bentley days, is a lot more enthusiasm and foresight on the part of a number of people who are in high places—and I am not talking about



For years now, Sunbeam-Talbots have been doing this sort of thing to consolidate their victories in rallies.

producing some very potent sports cars now, and the Americans, having decided that there is something in this motor racing business, have parked their gum for a little and produced a few motor cars that will not only go very fast, but will stay on the road at corners.

Jaguars of course have covered themselves in glory, and the twin-camshaft XK 120 is the sports car of the age. Aston-Martins have distinguished themselves with high placings in the Mille Miglia, and, more recently, a 1-2-3 romp in the Sports Car race at Silverstone. At the end of April last, incidentally, the Sports Car Club of America announced that Sherwood Johnston had gained the position of champion sports driver for 1952, and that the Jaguar which he used was rated as No. 1 sports car of the year.

In rallies, of course, Jaguars also took many honours. In the famous, gruelling Alpine Rally in July, Ian Appleyard won the big car class, in his new XK "RUB 120," which looks likely to be as successful as the 1950 "NUB 120" which had covered over 50,000 miles in competitions alone. The outright winner of the event, however, was a gentleman called Polensky, in a Porsche—a very potent make of German car, which gained 2nd and 4th place also. Four Sunbeam-Talbots finished without

losing any marks, and Sheila Van Damm won the ladies' prize in a car of that make. Other Sunbeam drivers were Stirling Moss, G. Murray-Frame and John Fitch, an American ace driver, who was the first American ever to gain a Coupe des Alpes, which is awarded to drivers of cars that lose no marks in the 2,000-mile "dice."

Turning from sport to the ordinary motorist's world, I would say that the most outstanding thing that has happened since I last wrote is that imports of foreign cars from certain areas have been made easier. The result is that already a number of European cars of very appealing design are available here.

One of these is the famous German People's Car, which was subject to ridicule during the war, but has proved an object of great respect to those who know about cars. The Volkswagen, as it is called, is a beetle-like device with rear air-cooled engine, and a brilliant performance, particularly in the matter of road-holding.



Aston-Martin's DB3 proved its worth in the British Empire Trophy Race in the Isle of Man, when Reg. Parnell won after a fight with the Wharton Frazer-Nash.

Air News

By John W. R. Taylor

Vertical Take-Off

In an effort to combat the overwhelming British and American wartime bomber offensive, the Germans in 1944 began to develop a series of fantastic rocket-powered target defence interceptors. One of these, the Bachem Natter, was designed to be fired off vertically from a ramp under radio control, and climb to 37,000 ft. in about one minute. A pilot was carried solely to guide the aircraft on its final approach to the target and to fire its rocket armament.

The Natter was not perfected by the end of the war, one of the chief problems being to launch it slowly enough to maintain efficient radio control and to prevent the pilot blacking out. News has now been given that the British Fairey Aviation Company has, since 1949, made a series of experiments on the same lines with rocket-powered pilotless delta-wing aircraft, which have shown that such machines can be launched from short ramps at low accelerations.

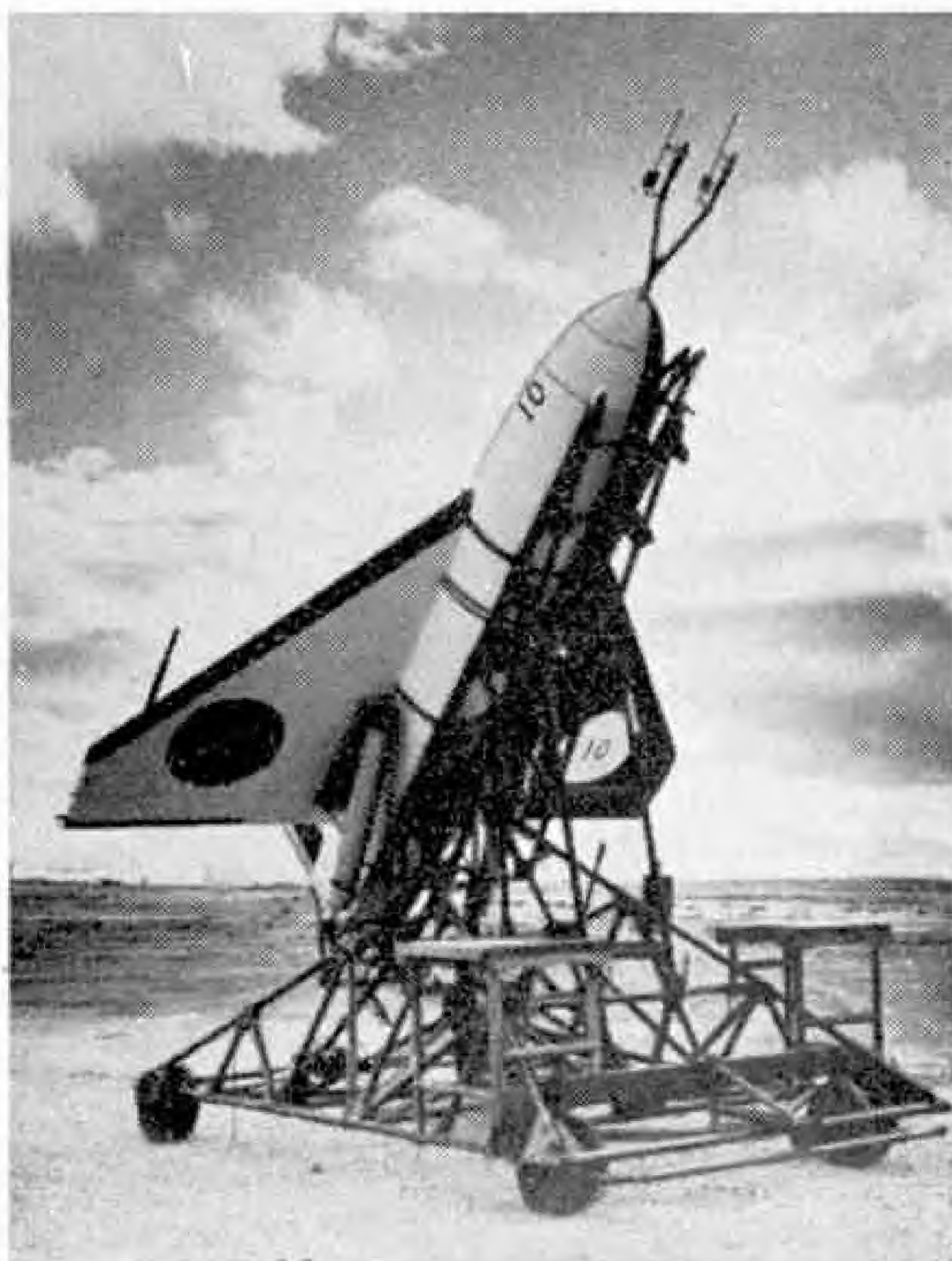
One of these Fairey V.T.O. (Vertical Take-Off) models is illustrated on this page, in photographs taken during firing tests at the Woomera Range, Australia. As can be seen, it is in general a half-scale replica of the Fairey F.D.1. delta-wing research aircraft, with a span of 10 ft. It is powered by a Fairey-developed Beta rocket-motor, which has two 900 lb. thrust jets. Two 600 lb. solid-fuel booster rockets were also used during initial stages of launching.

Biggest Blimp Flies

The largest non-rigid airship ever built, the Goodyear ZP2N *Nan*, has made its initial test flights at Akron, Ohio, U.S.A. Its envelope contains 975,000 cu. ft. of helium, compared with the 875,000 cu. ft. capacity of the ZPN prototype which was delivered to the U.S. Navy in 1952. An undisclosed number of ZP2Ns have been ordered for the U.S. Navy's anti-submarine force.

Crash Barriers for Runways

To prevent aircraft running off the end of the runway on landing, or when they fail to become airborne on take-off, the U.S. Air Force have installed



Fairey Vertical Take-Off model on its ramp at Woomera Rocket Range, Australia.

crash barriers at two of their bases in Korea. They are basically similar to the barriers used on aircraft carriers to "catch" machines that miss the normal arrester wires.

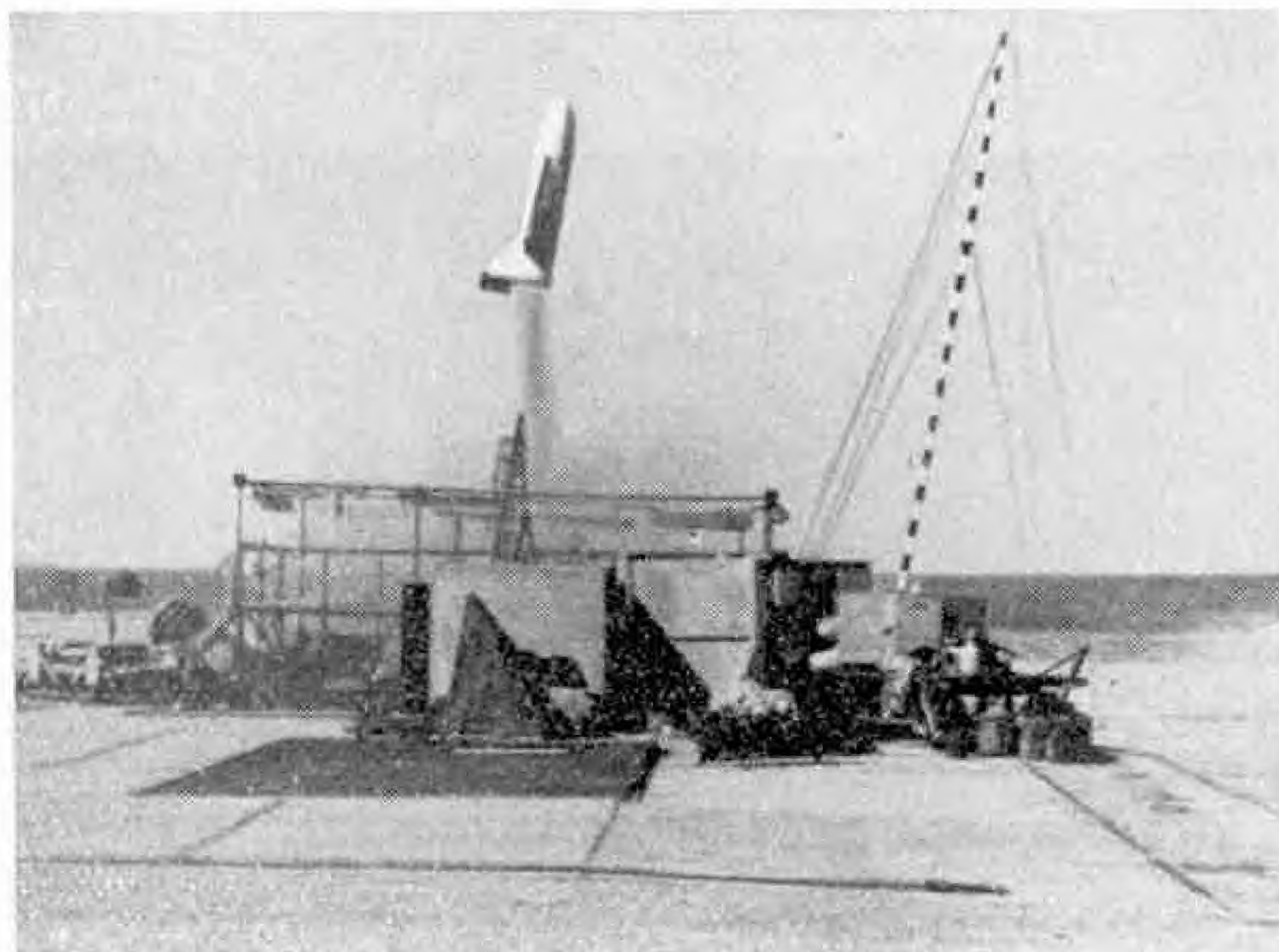
In tests, Sabre jet fighters were headed into the barrier at 140 m.p.h. with complete safety. What happens is that as the nosewheel goes through the nylon net, an arrester cable is triggered, which engages the main landing wheels. The arrester cable is attached at each end to heavy chains stretching along the sides of the runway. Cost of the net is about £50,000, and those in Korea have already prevented the loss of several £120,000 jet fighters and their pilots.

Viscount makes a Profit

Following B.O.A.C.'s statement that their Comet jet-liners are running consistently at a profit, B.E.A. have announced that their turbo-prop engined Viscounts also made a profit during their first month of regular, scheduled service. Altogether, the first five Viscounts carried 5,000 passengers an aggregate distance of 136,200 miles, earning £140,000 in revenue. They operated at a load factor of 75 per cent., which means that on average three out of every four seats were filled. A load factor of only 55 per cent. is needed to make a profit.

* * *

Slingsby Sailplanes, makers of the famous record-breaking, high-performance Sky, have produced a new medium-size sailplane called the Skylark, intended to sell for less than £700. Its 45 ft. span wings are plywood-covered, giving a very smooth surface, and on its first public appearance at Lasham it showed a promising performance.



The Fairey V.T.O. being fired on the range. The zebra-striped post on the right is for measuring initial acceleration.



Auster Ambulance/Freighter, showing the modified tail. Photograph by courtesy of Auster Aircraft Ltd.

Ambulance/Freighter Modified

As can be seen in the photograph above, the little Auster Ambulance/Freighter is now flying with modified fin and rudder. Both have been lowered to benefit from slipstream effect at low speeds, which is so effective that Auster have been able to eliminate the ground steering device originally fitted to the port tail wheel.

The roomy cabin of the Ambulance/Freighter makes it suitable for an almost limitless number of civil and military duties. As a supply aircraft it could, for example, carry either 85 gall. of petrol, rations for 120 men, blood plasma for 80 casualties, 11 miles of field telephone cable, two stretchers, 80 rifles, 10,000 rounds of ammunition or 15 2-in. mortars. Many of its components are interchangeable with those of standard Auster light 'planes and military air observation post aircraft, and it can fly equally well with or without its rear loading doors, so that supplies can be dropped from the air during flight. Its 180 h.p. Cirrus Bombadier engine gives it a cruising speed of 105 m.p.h. for 300 miles.

British Radar Gunsight

The R.A.F.'s new super-priority day fighters, the Hunter and Swift, are to have a lightweight radar "eye" which will lock on to an enemy aircraft in the sky ahead and feed its range automatically into the pilot's gunsight.

The new aid, known as the Ekco radar-range, eliminates what is now the pilot's most difficult task in the last few seconds before making his attack—that of estimating the enemy's range as he closes in at near the speed of sound, and adjusting his sight manually. Experts believe that the radar-range, which occupies only about one cubic foot of space, will ensure three or four times as many hits during combat at very high speeds as with present equipment.

31-foot Model Canberra

Centre of attraction on the English Electric Company's display stand at this year's Paris Aero Show was the 31 ft. long half-size model of a Canberra bomber shown in the lower photograph on this page. Probably the biggest scale model aircraft ever built in Britain, it weighs a ton and was completed in little more than two months by six joiners employed by Walkers' Westway Models, of Acton.

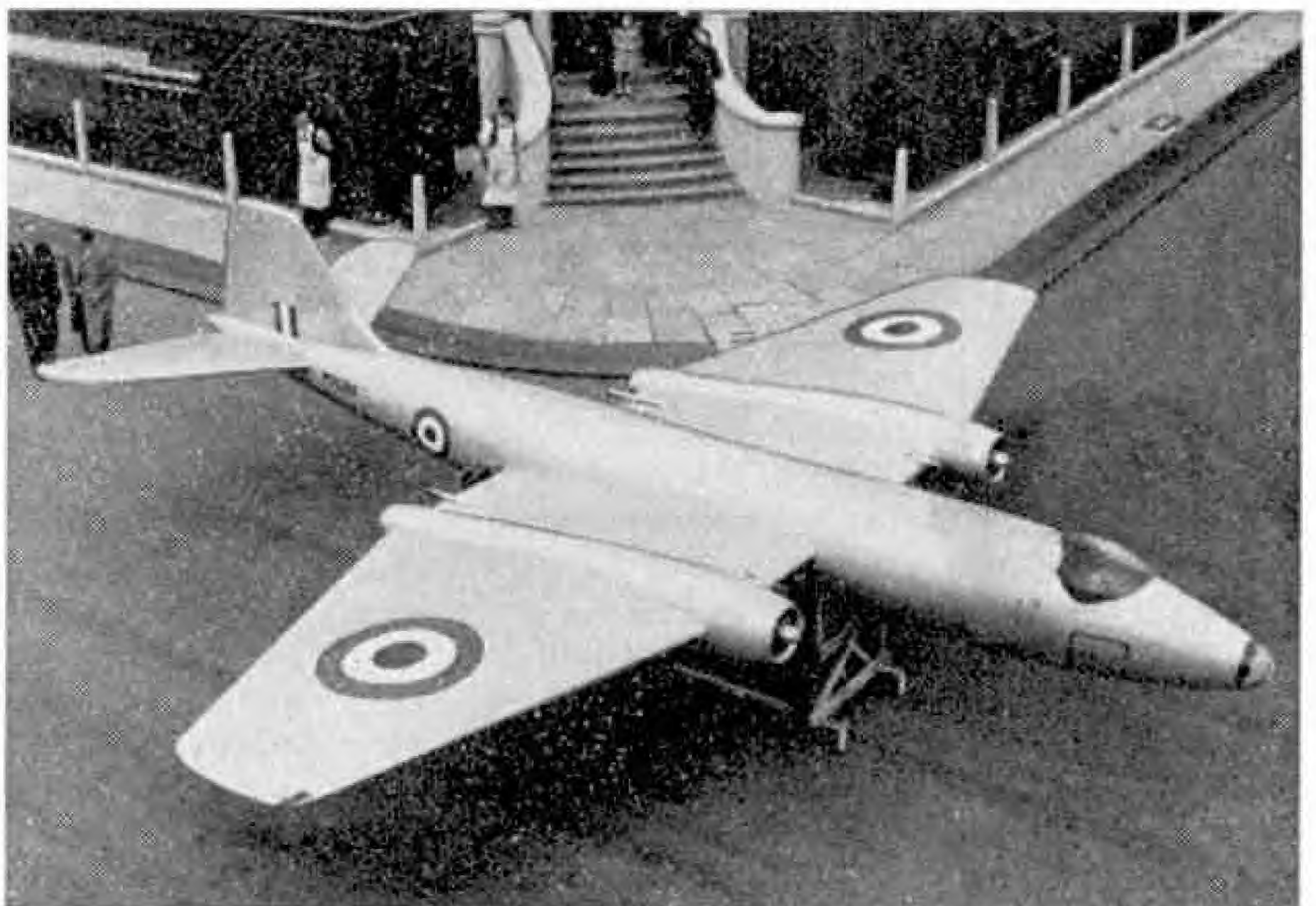
Before a start could be made, representatives of the model makers visited the English Electric factory at Preston, where Canberras are in production for Bomber Command, and they decided that their best method was to build up a skeleton framework corresponding approximately to the basic structure of the full-size aircraft. Some 600 to 700 drawings were used, and the materials consist almost entirely of timber, hardboard and synthetic adhesives. The outer skin is aircraft plywood, and the model is finished in the latest R.A.F. colour scheme of silver and grey.

Firewire

Latest safety aid being tested on the Comet, Viscount and other British aircraft is the Gravinier Firewire, which gives complete fire-warning coverage throughout an aeroplane at very low cost and weight.

It consists of a length of steel wire with a temperature-sensitive metal filling, through which an electrode runs. If the temperature rises, electrical resistance of the filling decreases. When it reaches the point at which there is danger of a fire starting, the circuit is completed and an alarm is sounded or warning light illuminated in the pilot's cockpit.

Capt. O. P. Jones of B.O.A.C., whose trim bearded figure has made him the world's best-known airline pilot, has completed his four millionth flying mile. He is the first Briton to achieve this total, which represents more than three years in the air.



A half full-size model of the Canberra, almost ready for transportation to this year's Paris Aero Show.

Railway Nicknames

By R. S. McNaught

TWO recent articles in the *M.M.* dealt with the subject of *Engine Nicknames*, and it seems fitting to add to this fascinating subject some notes about railway nicknames in general. The many separate companies of the days before grouping included several that had unofficial names. The London and North Western was admitted to be the Premier Line and their Scottish ally, the Caledonian, noting this, decided it was the True Line and said so on every one of its ornate posters; but officially-inspired nicknames never took on, and to everybody the C.R. was always the Caley—with a short "a."

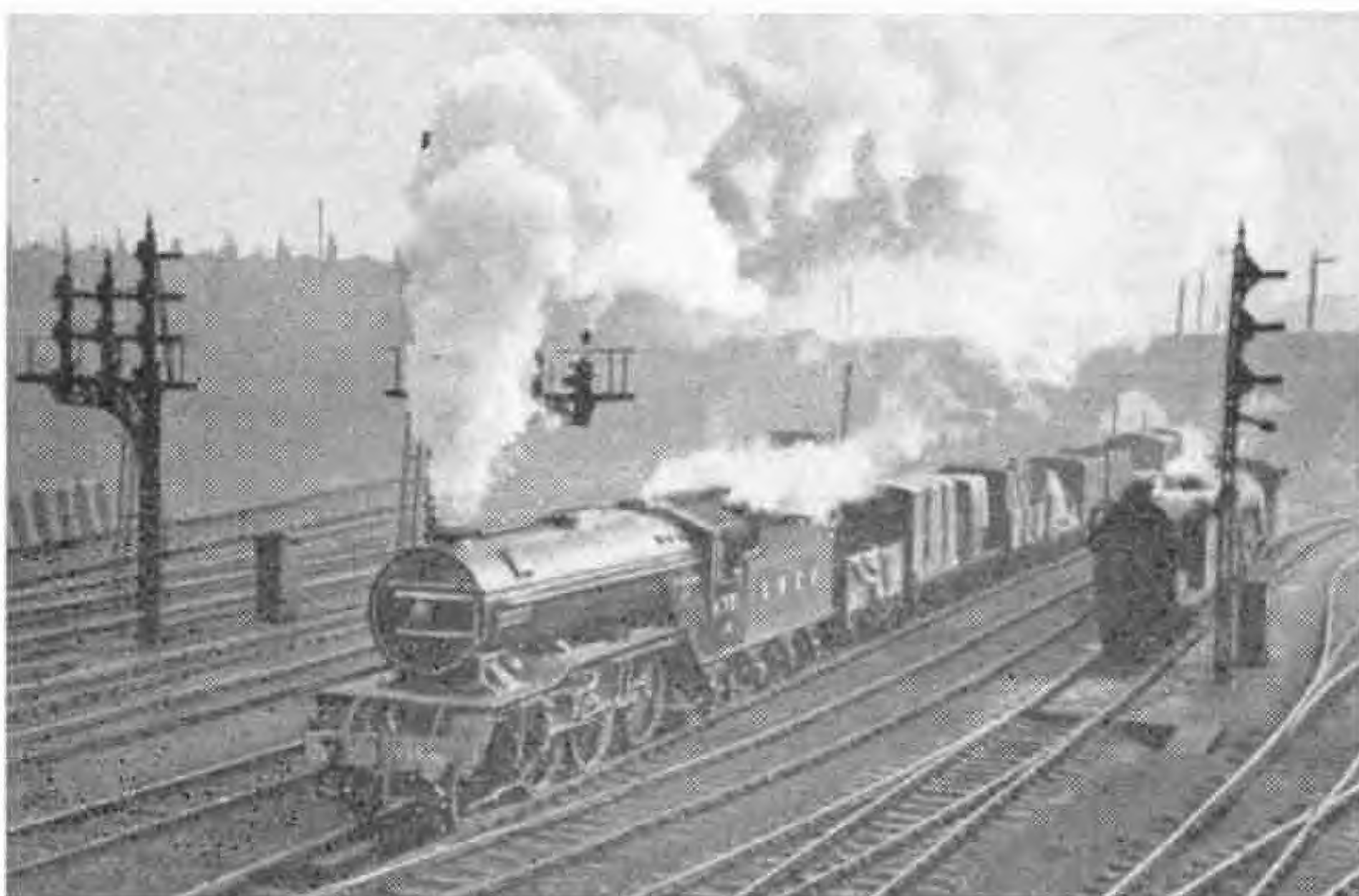
Few referred to the Lancashire and Yorkshire by any other title than L. and Y. Across the Border the North British was for each and all the N.B., but for some strange reason the large and important N.E.R. was never referred to otherwise than the North Eastern in full, although its staff, like its engines, were always Geordies, even many miles from Tyneside.

It was on some of the smaller concerns that widely-used nicknames were frequently bestowed. One was the Innocent Line, an Edinburgh district branch that was said never to have killed or even injured a passenger; another was Mr. Punch's Railway, the London and Greenwich, so-called because it was a special target for that old gentleman's caustic wit. Other examples that come readily to mind are the Cuckoo Line, the Tuppenny Tube and the Potteries. The last of these was the little Shropshire and Montgomeryshire Light Railway, still known in its own district. Much of its course was a revival of an ill-fated concern that hoped to link North Wales with the Staffordshire industrial area.

Certain local features often acquire a local nickname, often used for short, such as the Drain for the tunnel section

commencing at King's Cross for trains passing on to the Metropolitan Widened Lines to the City. Similarly passengers whirling through the long Severn Tunnel, are, in staff parlance, threading the Bore. Incidentally, the Severn Bore known to students of geography is something quite different; it is a miniature tidal wave phenomenon.

There is scarcely a large station without some part of it having a nickname commonly in use by its staff. Euston, for instance, has its Meadow, derived from an extension that robbed a London dairyman of his last scrap of pasture,



The Scotsman or Glasgow goods, in the days when it left King's Cross at 3.40 p.m. The engine is "Green Arrow," then No. 4771, the first of the V2 Class. Photograph by C. C. B. Herbert.

and No. 9 Platform is still spoken of as The York—relic of pre-King's Cross days when connections to Yorkshire usually used it. Then new carriage-sheds adjoining Euston were built at the time of the Russo-Japanese War, and are still referred to as Port Arthur, while the name Suez for a busy shunting-neck gives a clue to the time of its opening.

To a Southern Region man Cyprus is not so much a famous island as a part of the great terminus of Waterloo, and while still in London I ought to mention a Tube station that now has no access from the surface and is known by no other name than the nickname bestowed upon it by the staff of London Transport. This, with typical Cockney humour, is Bull and

Bush, and the station is used as a safe storage for London Transport records and documents. It is reached by the staff either by walking along the line, or by riding in the motorman's cab of an ordinary train and alighting during a brief halt

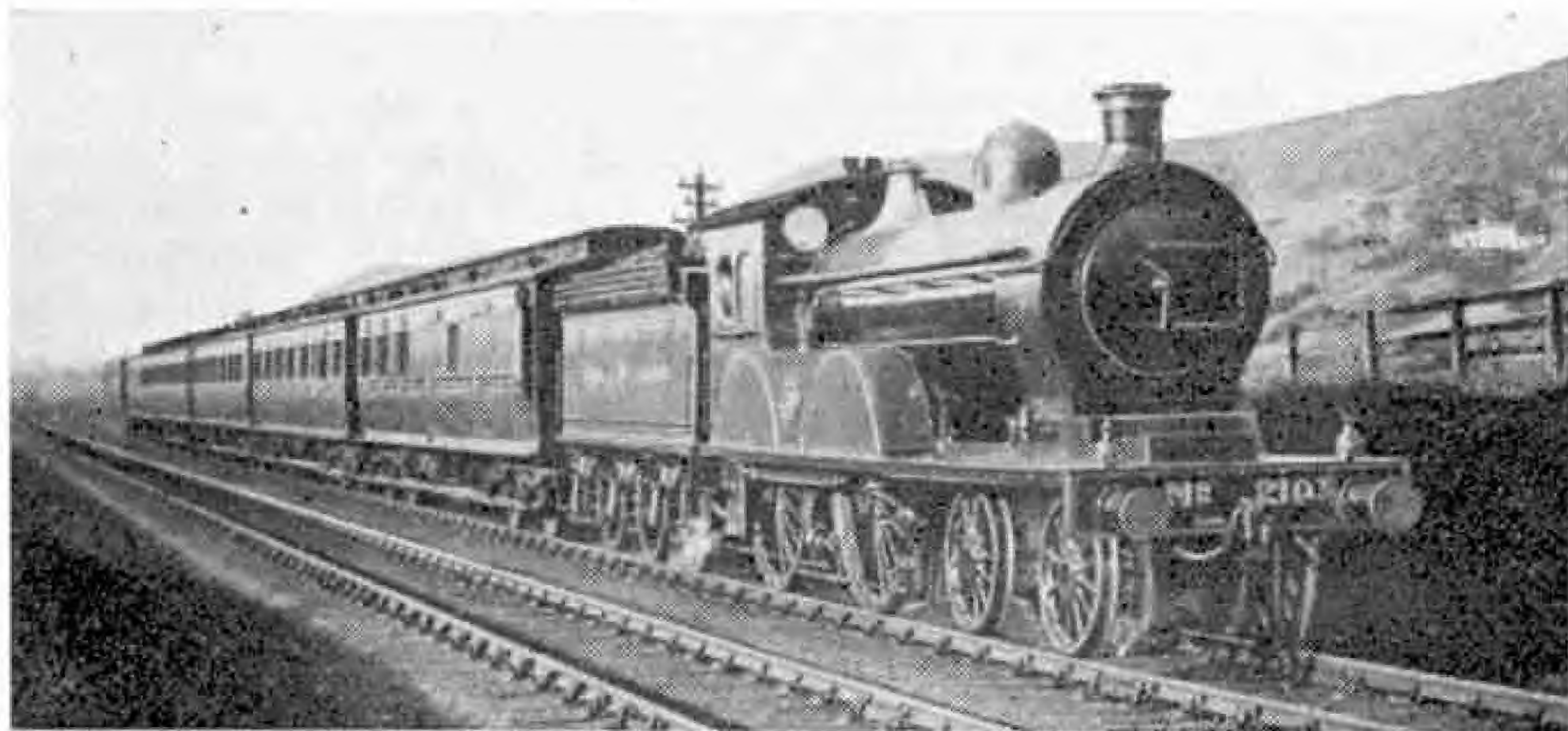


A Tommy Dodd or ground signal is prominent in the foreground of this picture taken at Bromley South. At the head of the train is an Eastern Region B1 locomotive on temporary service in the Southern Region. Photograph by B. C. Bending.

that passengers assume to be a signal check. The real name of the station was to have been North End, which does not provide much clue as to its exact locality.

Although more expresses than ever before are running today with official head-boards bearing names, there have always been some invariably referred to by a nickname. Among the best known are the Corridor, now officially the Mid-day Scot, the Limited, otherwise the Cornish Riviera Express, and the Beeswing, which was the South Western's rival to the Flying Dutchman. Then the useful North-to-West expresses that reach Shrewsbury, and then traverse the one-time L.N.W. and G.W. Joint lines via Hereford, have always been the

North Eastern engines and men were always known as "Geordies" to men on other railways. This Scarborough express is hauled by N.E.R. No. 2103. Photograph by H. G. Tidey.



Bristols, and the morning London express from Glasgow (St. Enoch) and the night train from Edinburgh (Waverley) to St. Pancras respectively are still the Pullmans, although they have not had Pullman carriages in their formation during the present century.

On the old Caledonian Railway there was a remarkable instance of a nickname receiving official recognition and actually supplanting the original proper title: this was the popular Tinto, put on between Moffat and Glasgow, with a short-lived section for Edinburgh, and first of all billed as the Upper Ward Express. But the men called it the Tinto, from a mountain that stands up prominently to the west of the main line near Symington, and that name soon appeared on its timetables and carriage sides.

While north of the Border, let us also mention the Paddy trains—Paddy to Glasgow and Paddy Mail, or Night Paddy, for the chief services through the wild Galloway country to Stranraer, connecting with the Irish steamers to Larne. And perhaps the horse-drawn

double-decker that formerly ran to Port Carlisle is best remembered as the Port Dandy.

The Great Western, right back in the Broad Gauge era, was a great line for naming its trains. Flying Dutchman is but a memory, but a daily service to the North is still the Zulu, although not officially. Another topical title of its day was Afghan. Strangely enough this title, although shortened to Ghan, is still applied to an important train in Australia that connects Adelaide with Alice Springs, in the centre of the Continent. The Ghan

is not celebrated for speed, as the run takes up two days, but it is quite an institution and although working over narrow gauge track has dining-car and sleeping accommodation and is heavily patronised, despite the rival air service. The strange nickname commemorates the days when the line terminated at an outlandish spot called Oodnadatta, and passengers continued to Alice Springs by camel, these slow but sure animals having been imported from Afghanistan for the job.

Nicknames are by no means confined to long distance or the most important trains. Thus the semi-fasts between Cambridge and London via Hitchin have long been known as Beer Trains. Workpeople's specials are particularly prone to a friendly unofficial title. One I remember well rejoiced in the terse name The Soap and consisted of an antique rake of North London four-wheelers. It plied between Birkenhead and Port Sunlight, for the use of the workpeople at the famous home of Sunlight Soap, and a strong aroma of carbolic soap always went with it and also distinguished the siding where it was parked between trips. Another well-known industrial is the Annesley Dido, which makes regular short trips in the vicinity of Doncaster. It is notorious as providing the very last job for obsolete engines called in to Doncaster Works for scrapping, but still able to be steamed in moderation.

Certain goods trains are also invariably referred to by railwaymen by a nickname. Probably the most aristocratic is the Scotsman, a fast fitted freight that leaves London daily at 3.15 p.m., and is due in Edinburgh at 4.55 next morning and in Glasgow at 5.15, after division at Niddrie Junction. It is frequently entrusted to a Pacific express locomotive for at least part of the run. The Cocoa has for many years been a well-loaded freight from Bristol to Paddington. The Western Region also claims a freight known as the

Moonraker, but alas for romance, the name derives from a range of butter and dairy products from a Wiltshire firm that often forms part of the goods loaded.

I also recall the endless procession of heavy coal trains that laboured along, night and day, during the first Great War. They were making sure that the British Grand Fleet at its northern Scottish bases was getting its coal, vital in those days before the oil fuel era. Jellicoes was the name given to these innumerable trains, upon which many of the old L.N.W. eight-coupled compounds gave their last ounce of strength. A Jellicoe climbing Shap on a wet day was indeed a stirring and volcanic sight!

Various types of rolling-stock, both passenger and goods, yield a big crop of nicknames, but it must be said at once that the fancy names given by the former G.W.R., such as Macaw, Siphon, Damo and Bloater, were officially thought up for easy recognition in telegraph messages, and are not actually nicknames. Those projecting look-outs on many goods brake vans are officially Duckets, but unofficially Monkey-houses: in this instance one



The Annesley Dido photographed some time ago. The engine is a former great Central 2-4-2T running as L.N.E.R. No. 7105. Photograph by J. P. Wilson, Nottingham.

prefers the correct name. Then there are, among passenger carriages, the old Brighton Railway Balloons, the unwieldy Great Western Noah's Arks, and the Birdcage vans of the South Eastern and North London lines. The first 8-wheeled coaches (non-bogie) built at Swindon were always Long Charlies, and the name Barnum, in addition to being applied to some G.W. engines, was given to a special type of carriage the Great Central Railway built for transporting circus and theatrical companies.



Club and Branch News



WITH THE SECRETARY

PRIZE-WINNING CLUBS

The names of prize-winners in the International Model-Building Contest are announced in this issue, and I have great pleasure in adding to these the names of the winners in the Club Section. The First Prize of £10 was awarded to the Nijmegen M.C., Holland. The Worcester College for the Blind secured the Second Prize of £5 and the Third Prize of £3 was awarded to the Association des Parents d'Elevés du Lycée de Montgeron, France.

The entry in the Meccano Club Section of this great Competition was disappointing, and only three further prizes of £1 were awarded, to the Exeter, Mile End (Portsmouth) and St. George's (Gateshead) Clubs respectively.

I congratulate heartily all those responsible for these successes, which I am sure will stimulate the members of the Clubs concerned to renewed efforts in all branches of Meccano Club work.

THINKING AHEAD

The secret of a successful Club or Branch programme is careful planning. That is, building up a programme that in catering for what the members like best to do at meetings yet contains sufficient variety of activity to strike a reasonable balance. So take care to call a general meeting early this month, and urge all your members to come to it, so that they can discuss and draft out the main points of the programme for the first Winter Session now about to start. To leave doing this until nearly the end of September does not give enough time for the details of the programme to be properly worked out and the necessary arrangements made before the Session actually begins.

PROPOSED CLUB

BARROW - IN - FURNESS — Mr. K. McCracken, 39 Harrogate Street, Barrow-in-Furness, Lancs.

MECCANO CLUB RECENTLY AFFILIATED

MYSORE (INDIA)—*Leader*, Mr. R. F. Thomas, M.A. *Secretary*: Mr. M. N. R. Radhakrishna, Door No. 1096, Chama Raja Param, Mysore, India.

CLUB NOTES

EXETER M.C.—There has been a very satisfactory increase in membership. Two large models have been completed, one of a Coal Shipping Plant and the

other a working model of a Printing Press. Club roll: 35. *Secretary*: R. Hawkins, 15 College Road, Exeter, Devon.

STRENSALL (YORK) M.C.—The standard of Meccano model-building continues very high, considering that the average age of members is 10-11 years. Models that gain the least points award are put on one side and their builders advised on the points that counted against them. The Technical Leader is to give a Talk on *The Differential Gear* and will demonstrate it until it is understood by all. A version of the B.B.C. feature *What's my Line* has proved a great success during recent months. Outdoor activities have included a Treasure Hunt, for which the members were divided into two groups that followed different routes but finished at the same place. A prize of Meccano Parts was awarded to the winner. Club roll: 23. *Secretary*: M. Kendall, 4 Mafeking Villas, Strensall, York.

AUSTRALIA

FREMANTLE AND DISTRICT M.C.—Members have been engaged mainly in building Meccano models for an Exhibition, and subjects completed at the time of writing include an outstanding model of a locomotive and tender. Three new members have been enrolled, two of whom have come from England. Club roll: 14. *Secretary*: G. Shea, 12 Foss Street, Palmyra, Western Australia.

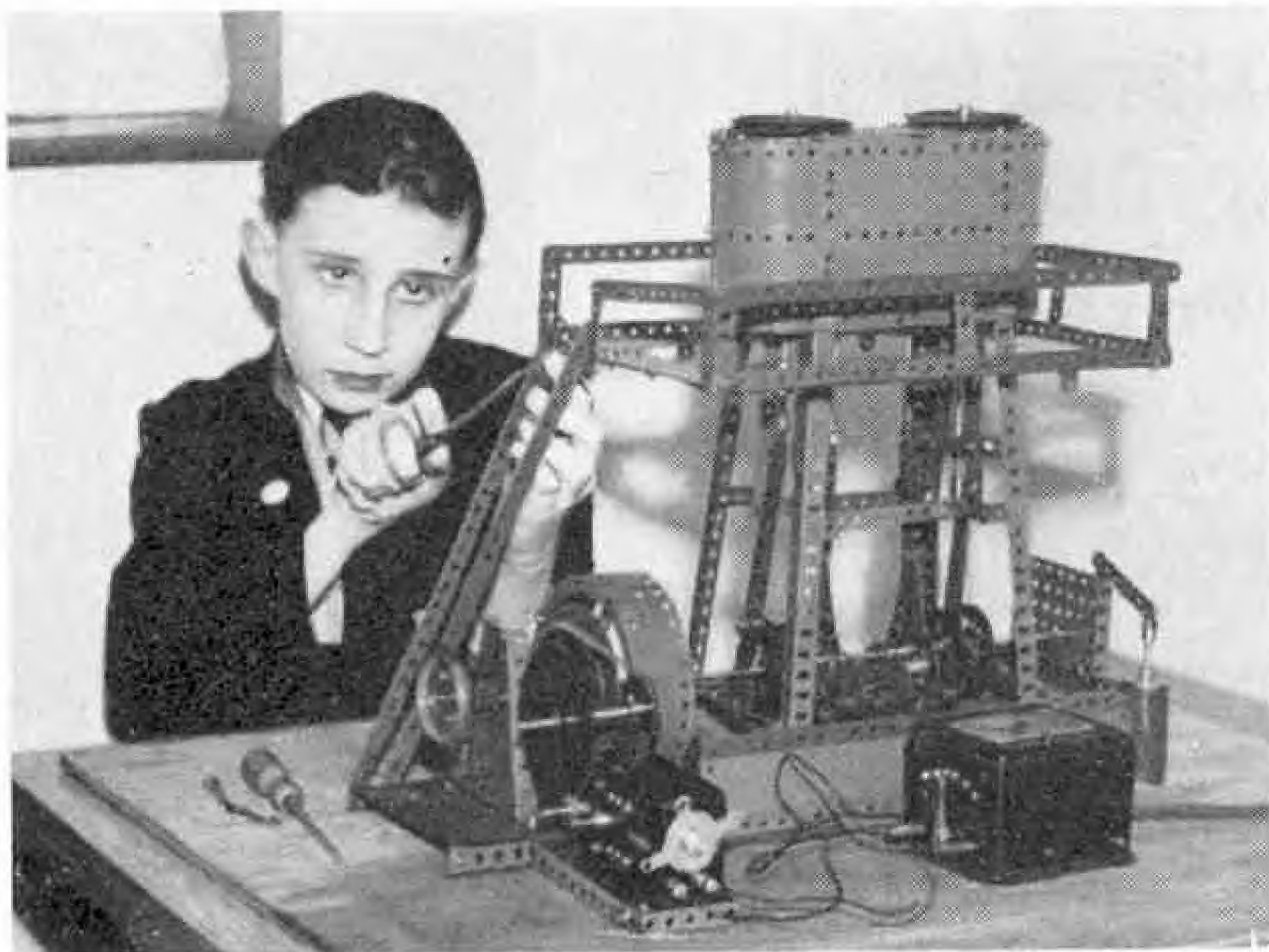
BRANCH NEWS

HINDHEAD AND DISTRICT—Recent meetings have been devoted to work on the Branch layout and discussions on items of railway modelling interest. Preliminary plans for the coming Winter include track operations, film shows, quiz and discussion evenings, and meetings to which members will be invited to bring along any model they are making at home and to work on it at the meeting. *Secretary*: B. J. Hinde, "Hindhead Brae," Hindhead, Surrey.

MAGDALEN COLLEGE SCHOOL (OXFORD)—Preparations for the Branch layout demonstrated during the School Commemoration week-end occupied several meetings. At the first of these meetings the layout question was discussed and a satisfactory design drawn up. Later the Branch stock of track was sorted out and repaired where necessary, then the agreed layout was laid down as for the Exhibition and approved by all the members present, and finally some experimental trains were run on it. At the Exhibition a Hornby-Dublo layout was also laid down and operated on a smaller bench in the same room. *Secretary*: D. F. Moss, 61 Victoria Road, Summertown, Oxford.



Officials and members of the Tynecastle School (Edinburgh) M.C.: *Leader*, Mr. W. C. Stephen. Mr. A. Beatty, *Secretary*, is the third from the left and J. Forrester, *Treasurer*, is third from the right. This excellent school Club follows an attractive programme that includes model-building, woodwork and table games.



John Hooper, Chiswick, London W.4, won the Shield offered for the best entry in a Handicrafts Contest held at his School. He is seen here finishing work on the Meccano model marine engine that formed his exhibit.

to the model. I congratulate John on his good win, which was earned in the face of considerable competition from a large number of other attractive and praiseworthy examples of the hobbies and handicrafts of the boys at this School.

A Simple Intermittent Drive

In many models some form of mechanical movement is required to provide an intermittent drive from a shaft driven constantly by the Motor. Mechanisms suitable for converting constant rotary motion to intermittent motion are quite easy to assemble, and I have described examples of several different arrangements in these pages from time to time. Most of these, however, have needed gears and sliding shafts to obtain the intermittent drive, but this month I am describing a very simple mechanism that gives the same result without using gears of any kind. The drive depends for its action on friction, and although it may slip under a very heavy load, it is really quite powerful, and model-builders will find it most useful in light models when an intermittent motion mechanism is required.

The essential feature of the mechanism is a 2" Pulley 1 fitted with a Motor Tyre, but before the Tyre is pressed on the Pulley a length of Cord is wrapped around it as shown in Fig. 2. This wrapping does not extend completely round the Tyre however, and its effect therefore, is to increase the cross section of the Tyre over only part of its circumference. This

Tyre and its Pulley are fixed on the driving shaft.

Shaft 2 in the illustration is the one that is driven and it carries a 1" Pulley 3 also fitted with a Motor Tyre. The Pulley is fixed on the Rod so that the Tyre just clears the unwrapped portion of the Tyre on the 2" Pulley. As the 2" Pulley rotates its Cord wrapping engages the Tyre on the 1" Pulley and so transmits the drive to Rod 2. Continued rotation of the 2" Pulley brings the Tyre and Cord out of contact, so that Rod 2 remains stationary for part of each revolution of the driving shaft. The duration of the stationary period can be varied by adjusting the length of the wrapped section of the Tyre on the 2" Pulley.

The Cord may be wound in two or more sections, so that the Rod 2 turns only when each section contacts the 1" Tyre.

This arrangement was suggested by Mr. H. H. Taylor, Birkby, Huddersfield, who used it in a model of performing acrobats, and I have no doubt that readers will find many other uses for a simple intermittent drive of this kind.

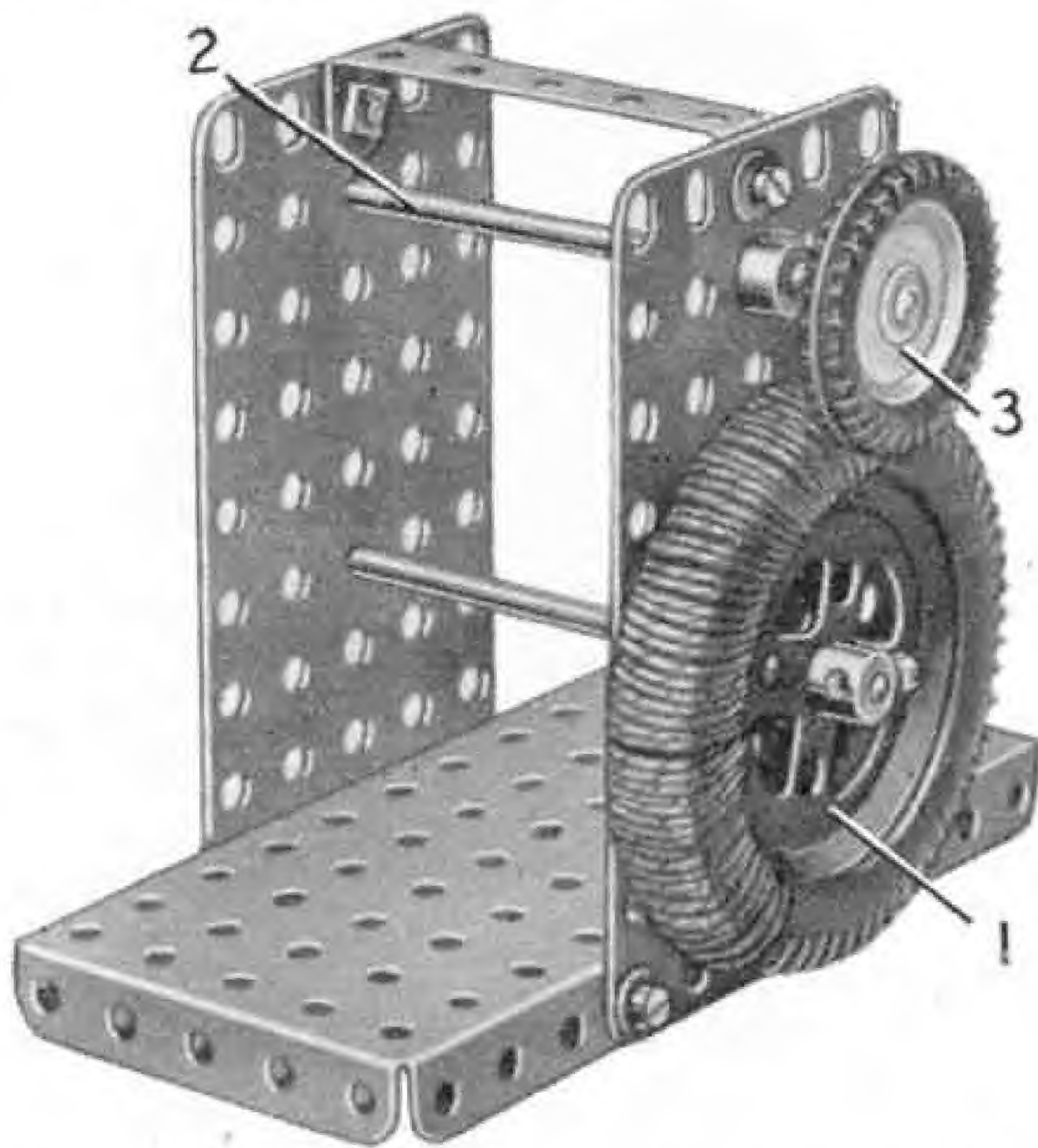


Fig. 2. A very simple intermittent motion device that is really serviceable. It is based on a suggestion submitted by H. H. Taylor, Birkby, Huddersfield.

Meccano International Model-Building Competition

Full Lists of Prize-winners

MECCANO model-builders all over the world have been waiting anxiously for the results of the Great Meccano International Model-Building Competition, in which over £1000 was offered in prizes. The Contest closed for entries on the 31st March last and since that time the judges have been hard at work on the huge number of entries this greatest-ever Meccano Competition attracted. No one who has not had the experience can have any idea of the enormous amount of work involved in handling a Competition of this kind, for each entry has to be very carefully scrutinised, and often re-examined several times, before a final judgment on its merits can be reached.

When the prize-winners had finally been decided, each one was notified by letter, and in addition to his prize each one was presented with our Official Certificate to commemorate his success in this world-wide Contest.

During the Competition every post brought entries from all parts of the world. England and France headed the list with the largest numbers of entries, but Holland, Italy, Australia, S. Africa, Canada and New Zealand were close runners up. Many excellent models came also from Mexico, India, Belgium, Spain and Malta, and there were a few from other countries, and even from remote islands in the Pacific!

We would like to take this opportunity of expressing our appreciation of the support the Competition has received from these "boys" of many nations. We wish it had been possible to reward them all with prizes for their splendid efforts! We do hope that those who were unsuccessful will continue to send in entries for the Competitions announced each month in the *Meccano Magazine*, and that before long we shall have the pleasure of seeing their names in our prize lists.

During the coming months illustrations and descriptions of many of the principal prize-winning models will be included in the *M.M.*

The complete lists of awards in each Section of the Competition are as follows:

SECTION A.
(Competitors not more than 10 years of age)

Mr. B. W. Rowe, Buckfastleigh, Devon, winner of 1st Prize in Section C.

on 31st March 1953).

First Prize: Cheque for £30; Michael R. Nash, East Bedfont, Middlesex.

Second Prize: Cheque for £15; John Burkevics, Canberra, Australia.

Third Prize: Cheque for £10; Gerard Taccoen, Malo-les-Bains, France.

Fourth Prize: Cheque for £5; Michael G. Membery, Droitwich.



Michael R. Nash, Bedfont, Middlesex, winner of 1st Prize in Section A.

50 Prizes: Each of £2.

Agron, Claude; Paris.
Allen, R. L.; Market Drayton.
Avigliano, Luciano; Naples.
Beresford, Charles; Rugby.
Black, John; Camberley, Surrey.
Bo. Mario; Guastalla; Italy.
Boudon, Pierre; Alencon, France.
Bowden, Peter; Leicester.
Breton, J. J.; Paris.
Brooks, P. H.; Banbury.
Cooke, R. D.; Capetown.
Craddock, Paul; Redditch, Worcs.
Davey, R. C.; Lowestoft.
Driver, Michael; Sheffield 10.
Dunham, Richard; Swanage.
Forrest, John; Manchester.
Freeman, Richard; Amersham, Bucks.
Fuell, Keith; Coventry.
Furness, B. J.; Leeds 7.
Garside, M. V.; London S.E.3.
Gay, P. W.; Bristol.
Girard, Christian; Asnieres, France.
Harding, Martin; Richmond, Surrey.
Harvey, Malcolm; Transkei, South Africa.
Hill, Ernest; Bury.
Jones, Christopher; Rugeley, Staffs.
Jones, Terry; Ammanford, Carmms.
Lebbink, A. E.; Delft, Holland.
Le Coq, J. P.; Meudon, France.
Ledger, T. C.; Sittingbourne, Kent.
Lefevre, Edgard; Brussels.
Levasseur, A.; Pointoise, France.
Levasseur, J. C.; Pointoise, France.
Lherminier, Annick; Laigle, France.
McEvoy, J. J.; Larne, Co. Antrim.
McKinnon, Stuart; Rutherglen, Lanarks.
Matthews, Rodney; Sutton Coldfield.
Maxwell, John; London S.W.11.
Morris, J. C.; Ardrossan.
Newsome, Terry; Birkenshaw, Yorks.
Ockelford, L. J.; London N.11.
Ritchie, Brian; Renfrew.
Rutten, Paul; Antwerp.
Siesling, R. P.; Zwolle, Holland.
Smith, Muriel G.; Sidcup.
Touzet, Regis; Agen, France.
Venturelli, Michel; Calvados, France.
Voorst, O. R. F.; Amsterdam.
White, Ian; Exeter.
Wilson, Peter; Sidcup, Kent.

100 Prizes: Each of £1.

Bartlett, James; Meols, Wirral.
Beusekom, A. C.; Zaltbommel, Holland.
Bone, D. G.; Bardsea, Lancs.
Bouchet, Jack; Chalette, France.
Christian, M. W.; Boars Hill, Oxford.
Clements, Roger; Kings Norton, Birmingham.
Cohn, P. M.; Melbourne, Australia.
Coppens, M.; Louvain, Belgium.

Costeseque, J.; Carcassonne, France.
 Couchman, Robin; Worcester.
 Coulden, T. M.; West Wickham, Kent.
 Cross, John; Johannesburg.
 Daury, Philippe; Levallois Perret, France.
 Declomesnil, J. P.; Les Ponts de Ce, France.
 Duban, Francois; Quarre les Tombes, France.
 Edwards, K.; Sydney, Australia.
 Elkins, R.; Eastleigh, Hants.
 Evans, R. L.; Menston-in-Wharfedale, Yorks.
 Fauvel, O. R.; Medicine Hat, Alberta, Canada.
 Gaff, David;

Guildford,
 Surrey.

Girouin,
 Gabriel;
 Algiers.

Gooding,
 Terry; Bristol
 4.

Goodman,
 Peter; Illston-
 on-the-Hill,
 Leicester.

Gras, Claude,
 Vigney
 Vallénay,
 France.

Grenier,
 Daniel; Le
 Houme,
 France.

Grosse, J. P.;
 Vaujours,
 France.

Hadley, Philip;
 Alverstone,
 Hants.

Harpe, Pierre; Lausanne, Switzerland.

Holmes, J. J.; Ashted, Surrey.

Hopewell, N. B.; Krugersdorp, Transvaal.

Howard, Bernard; Plymouth.

Hubert, Christian; Esmais par Escaudœuvres, France.

Illingworth, G. R.; Shipley, Yorks.

Isbister, Robert; Burwood, Australia.

Jessup, Nicholas; London W.1.

Jones, C. E.; Dursley, Glos.

Joyner, Anthony; Birmingham 22a.

Keith, Allan; Ashburton, Australia.

Kerr, R. B.; Invergordon.

Klein, J. Y.; Caen, France.

Lamare, J. C.; Le Vesinet, France.

Langevin, Gerard; Equerdreville, France.

Lefebvre, Francois; Henryville, Canada.

Libes, Georges; Carcassonne, France.

Ling, Jonathan; Potters Bar, Middlesex.

Lock, D. A.; Sevenoaks, Kent.

Lombard, Claude; Auterive, France.

McGettrick, Vincent;

Clontarf, Dublin.

McGuire, John; Clough-
 Jordan, Eire.

Mackintosh, G. B.; Dublin,
 Eire.

Maigler, P. R.; Lomas,
 Mexico.

Mamy, Michel; Bourges,
 France.

Meek, Leslie; Edinburgh 9.

Meester-Serruys, A.;
 Roeselare, Belgium.

Michell, Ian; Hatch End,
 Middlesex.

Middelmann, Robert;
 Newlands, S. Africa.

Mitchell, Terry;
 Farnborough, Hants.

Moore, D. G.; North
 Hayling, Hants.

Morrissey, Seamus;
 Waterford, Eire.

Nicholson, Antony; Louth,
 Lincs.



Brian W. Gulley, St. Saviour's,
 Jersey, won 3rd Prize in Section B.

North, M. J.; Shortlands, Kent.
 Nystrom, John; Helsingfors, Finland.
 Ougen, J. P.; Château-du-Loir, France.
 Parisis, Pierre; St. Quentin, France.
 Parsons, Hugh; Eastbourne.
 Partridge, K.; Clacton-on-Sea.
 Patrick, David; Colwyn Bay, N. Wales.
 Pearce, D. I.; St. Budeaux, Plymouth.
 Penny, Christopher; Spinney Hill, Northampton.
 Pochat, Joel; Nevers, France.
 Reeve, Edward; Westcliff-on-Sea, Essex.
 Richards, Paul; Borth, Cards.
 St. Paer, M.; Musselburgh, Midlothian.
 Salter, Clifford; Malborough, Devon.
 Sergio, B.; Mantova, Italy.
 Shattock, Michael; Northolt, Middlesex.
 Shipp, P. J.; Northwood, Middlesex.
 Simi, J. P.; Bastia, Corsica.
 Smith, R. H.; Walton-on-Thames, Surrey.
 Steffensen, Bevan; Motueka, New Zealand.
 Stuart, Philip; Bristol 3.
 Stubbs, David; Bourne, Lincs.
 Symond, Mark; Kroonstad, S. Africa.
 Thearle, Antony; Abergele, Denbighshire.
 Thomas, Adrian; Upleadon, Glos.
 Tyrrell, A. P.; Epsom, Surrey.
 Vincent, A. L.; Chilwell, Notts.
 Vinter, Mark; London S.W.19.
 Waite, Robert; Skegness.
 Watkins, Richard; Birmingham 31.
 Welburn, Michael; Birmingham 29.
 Weldon, Peter; Castletroy, Eire.
 Werner, Gunther; Gerstheim, France.
 Westwood, Michael; Weybridge, Surrey.
 Wilson, R. M.; Glasgow S4.
 Winkel, J. J.; Sarrebourg, France.
 Woodford, Nigel; Romford, Essex.
 Woolford, Murray; Hamilton, New Zealand.
 Wootton, Russell; Seale, Surrey.
 Wright, I. C.; Clayton-le-Moors, Lincs.

SECTION B. (Competitors between 10 and 16 years of age on 31st March 1953).

First Prize: Cheque for £50: D. Basson, Pretoria, South Africa.

Second Prize: Cheque for £25: Bernard Tiberghien, Tourcoing, France.

Third Prize: Cheque for £15: B. W. Gulley, St. Saviours, Jersey.

Fourth Prize: Cheque for £10: Claude Giasson, St. Hyacinthe, P.Q. Canada.

20 Prizes: Each of £5:

Barnes, J. G. P.; London W.13.

Blatchford, Michael; Bath.

Burrows, Noel; Leiston, Suffolk.

Collins, Michael; Toronto, Canada.

Crack, C. A.; Bury St. Edmunds.

Debenham, W. M.; London N.W.8.

Devey, Claude; Paris.

Galloway, Donald;
 Geneva, Switzerland.

Guieu, Gerard; Marseilles.

Hacking, D.; Sheffield.

Hibell, M. I.; Brixham,
 Devon.

Keith, P. G.; London
 S.W.1.

Kempers, P.; Rotterdam.

Kok, T. L.; Voorburg,
 Holland.

Krack, Martial; La
 Chappelle par Flogny,
 France.

Lewis, Peter; Bridlington,
 Yorks.

Oates, Peter; Mullion
 Creek, Australia.

Parker, M.; Bedford Park,
 W. Australia.

Saunders, P. E.; Riccarton,
 Christchurch, New
 Zealand.

Waring, M. J.; Lancaster.



O. R. F. van Voorst, Amsterdam, Holland,
 who was awarded a prize in Section A. He
 is seen here with his sister.

50 Prizes: Each of £2:

Aune, Bryan; Rowley, Alberta, Canada.
 Badina, J.; Haguenau, France.
 Bourdeix, Bernard; Chalon S/Saone, France.
 Boyer, A. R.; Guildford, Surrey.
 Butterworth, J.; Torquay.
 Caron, G.; Montauban, France.
 Comte, Francis; Maisons Alfort, France.
 Cunawardana, U. W.; Dehiwela, Ceylon.
 Davies, Ian; Maylands, Australia.
 Docter, W. L.; Rump, Holland.
 Erbo, Henrich; Hilbringen, France.
 Ewins, A. J.; London W.3.
 Fabrizio, Bodini; Rome.



Donald Galloway, Geneva, Switzerland, won a prize of £5 in Section B.

Fayon, P. and Palliore, M.; Paris.
 Gessat, Philippe; Blois, France.
 Glorieux, J. M.; Brussels.
 Hart, D. E.; Keighley, Yorks.
 Harris, T. J. B.; London S.W.5.
 Hartwick, John; Grovedale, Australia.
 Hauducœur, Alain and Gérard; Lille, France.
 Hendy, B. G.; London N.1.
 Hildyard, E. M.; Bishop Auckland, Durham.
 Holding, R. G.; Colwyn Bay, N. Wales.
 Horton, D. J.; Walsall, Staffs.
 Howard, David; Colwyn Bay, N. Wales.
 J o p e, J. A.; St. Budeaux, Devon.
 Kapadia, B.M.; Deolali, India.

Kit, Jurij; Canberra, Australia.
 Laurent, Armand; Lausanne, Switzerland.
 Levitt, Harry; Johannesburg.
 Luttmir, Roger; Wookey Hole, Somerset.
 Manduca, Jean; St. Julians, Malta G.C.
 Marguery, Francis; Amiens, France.
 Mastrolilli de Angelis, Mario; Naples.
 Muller, M.; Winterthur, Switzerland.
 Muthayya, J.; Madras, India.
 Ostrowick, Richard; Johannesburg.
 Parish, A. F.; Wakefield, Yorks.
 Patterson, Ian; Chester-le-Street.
 Pilkington, Ian; Liverpool 16.
 Rogers, M. J.; Yeovil, Somerset.
 Smith, Neville; Duncanville, Transvaal, S. Africa.
 Soukry, Pierre; Strasbourg, France.
 Sutton, C. J.; Brooklyn, Pretoria, S. Africa.
 Thomson, S. C.; Gisborne, New Zealand.
 Tozef, Frederick; Blankenberge, Belgium.
 West, David; Llysfaen, Colwyn Bay, N. Wales.
 Wills, Anthony; Southampton.
 Woodward, D. J.; Birmingham 17.
 Zorzin, Francesco; Genoa, Italy.

60 Prizes: Each of £1:

Adey, A. J.; Lymm, Warrington.
 Amann, J. J.; Poste Ostwald, France.
 Anderson, V. E.; Capetown.
 Ashmore, Bruce; Dalkey, Co. Dublin.
 Bauer, Robert; Moyeuve-Grande, France.
 Beaumont, Antony; Johannesburg.
 Becker, Bruce; Kitchener, Ontario, Canada.
 Beggs, J. A. A.; West Kirby, Wirral.
 Begon, G.; Vertaizon, France.
 Belbis, Michel; Castelsarrasin, France.
 Beukenholdt, H.; The Hague, Holland.
 Binswanger, Christoph; Muri bei Bern, Switzerland.
 Bottomley, J. P.; Huddersfield.
 Bretten, David; King's Lynn, Norfolk.

Brooks, Bernard; South Benfleet, Sussex.
 Clarke, Derek; Long Eaton, Notts.
 Cleare, Kenneth; Hunston, Chichester.
 Coetzee, J. J.; Dierner, S. Africa.
 Colas, Michel; Versailles, France.
 Dickenson, K.; Sheerness.
 Dickinson, W.; Stirling.
 Duprey, Michel; Breteuil, France.
 Dutech, Francis; St. Maur, France.
 Elam, M. R.; Hastings.
 Fontaine, Gerard; St. Quentin, France.
 Francois, Claude; Paris.
 Griffith, John; Scarborough.
 Hamilton-Piercy, N. F.; Cross-in-Hand, Sussex.
 Harber, Colin; Orpington, Kent.
 Holden, K. J.; Belfast, Northern Ireland.
 Hunt, David; Blaby, Nr. Leicester.
 James, G. B.; Grasmere, Westmorland.
 Kaeslin, Willy; Kriens, Switzerland.
 Kent, J. A.; Bexhill-on-Sea, Sussex.
 Kittow, K. C.; Southampton.
 Knowler, A.; Efford, Plymouth.
 Lambrechts, A.; Antwerp, Belgium.
 Levin, Arnold; Johannesburg.
 Luycks, M. J.; Couillet, Belgium.
 McLean, Murray; Bellarine, Victoria, Australia.
 Manduca, Joseph; St. Julians, Malta G.C.
 Marais, P. J.; Wynberg, C.P., S. Africa.
 Morin, J. P.; Gap, France.
 Parker, B.; Attenborough, Notts.
 Parkin, I. A.; Perth, Australia.
 Pazzi, G. P.; Rufina, Italy.
 Pfothner, M. V.; Durban, S. Africa.
 Prince, J. R.; London W.14.
 Riley, George; Stowmarket, Suffolk.
 Rogers, M.; Maidenhead, Berks.
 Seymour, Percy; Kimberley, S. Africa.
 Simpson, P.; Wolverhampton.
 Slater, E.; Ellesmere Port, Wirral.
 Smith, Malvern; Stellenbosch, S. Africa.
 Stoddart, Peter; Wigton, Cumberland.
 Strasser, Robert; Haguenau, France.
 Verschoor, Jan and Jaap; Rotterdam.
 Vink, Jan; Eindhoven, Holland.
 Whitham, Geoffrey; Bury.
 Worthington, S. G.; Manchester 9.

SECTION C.

(Competitors 16 years of age or over on 31st March 1953).

First Prize:

Cheque for £50: B. W. Rowe, Buckfastleigh, Devon.

Second Prize:

Cheque for: £25: T. J. Utting, Norwich.

Third Prize:

Cheque for £15: Su. D. Enrique Pallas Miguel, Barcelona, Spain.

Fourth Prize:

Cheque for £10: K. Hill, Girton, Newark, Notts.

20 Prizes: Each of £5:

Bernstein, S. M.; Capetown.
 Biddulph, W. F.; Doxey, Stafford.
 Bronne, Henri; Nice, France.
 Coltman, F.; Loughborough.
 Davy, F. C.; Auckland, New Zealand.
 Gautier, A.; Perpignan, France.
 Gottlob, N.; Hjortakaer, Denmark.



4th Prize in Section A went to Michael G. Membrey, Droitwich.

Hellyer, D. G.; Boksburg, S. Africa.
 Henry, E.; Sheffield.
 Henry, H. W.; Rochester, Kent.
 Jones, K.; Berala, Australia.
 Kalin, Josef; Freienbach, Switzerland.
 Kelly, G. W.; Wellington, New Zealand.
 Mathers, J. R.; Kings Norton, Birmingham.
 Munon, Pierre; Inbermais par Dreux, France.
 Stewart, W. H.; Edinburgh 6.
 Taylor, H. H.; Birkby, Huddersfield.
 Thorpe, J. H.; Sidcup, Kent.
 Vaudel, Louis; Angers, France.
 Wallis, G. B.; Rugby.

50 Prizes: Each of £2:

Ammerich, Albert; Dijon, France.
 Anstey, P. S.; London W.2.
 Barnasconi, A. H.; Hilversum, Holland.
 Bergougnoux, J.; Antony, France.
 Bottomley, B. J.; Clayton West, Nr. Huddersfield.
 Brawn, D. F.; Kingsthorpe, Northampton.
 Brewis, A. A. C.; Royton, Lancs.
 Bulteau, Jacques; Roubaix, France.
 Burnett, D.; Horsham, Sussex.
 Cameron, Dr. K. W.; Perry, Co. Kentucky, U.S.A.
 Clements E. D.; Emsworth, Hants.
 Clift, S. W.; Moonee Ponds, Victoria, Australia.
 Ccmbeaux, Pierre; Meaux, France.
 Conlon, T. J.; Tingalpa, Australia.
 Debono, G.; Sliema, Malta G.C.
 Douglas, M. K.; Peterhead, Aberdeen.
 Draper, J. A.; Worcester Park, Surrey.
 Dredge, C. H.; Reading, Berks.
 Drevet, Maurice; Paris.
 Eyre, A.; Sheffield 10.
 Gayraud, J.; Beziers, France.
 Girod, Andre; Zurich, Switzerland.



T. J. Utting, Norwich, winner of Second Prize in Section C.

Halliday, H. J.; London S.E.15.
 Hawkins, J. W.; Woking, Surrey.
 Hough, S. G.; Melton Mowbray, Leicester.
 Hudspith, J. C.; Kenley, Surrey.
 Huffam, B. J.; Ikamatua, New Zealand.
 Jansen, J.; Vlaardingen, Holland.
 Kritzinger, J. J.; Johannesburg.
 Laar, L.; Rotterdam.
 Lessing, B. J.; Villieria, S. Africa.
 Madelin, A.; Angers, France.
 Manduca, J. S.; St. Julians, Malta G.C.

Molinas, Marc.; Aix en Provence, France.
 O'Flynn, J.; Cork, Eire.
 Pajello, Alessandro; Bologna, Italy.
 Pouligny, Claude; Perpignan, France.
 Prince, A. A.; Uttoxeter, Staffs.
 Quesada, I. V. M.; Lima, Peru.
 Reid, S.; Aberdeen.
 Roussillon, Michel; Dijon, France.
 Sammons, D. B.; Sanderstead, Surrey.
 Schenkel-Ritter, Paul; Berne, Switzerland.
 Semblat, Claude; St. Pierre la Cour, France.
 Sicker, W.; Zurich 6, Switzerland.
 Smith, Hylary; Port Elizabeth, S. Africa.
 Touryan, James; Beirut, Lebanon.
 Vernoux, Bernard; Paris.
 Vullo, Dr. Piero; Imperia, Italy.
 West, J. E.; Creswell, Worksop.

60 Prizes: Each of £1:

Aria, F. D.; Bombay, India.



Sn. D. Enrique Pallas Miguel, Barcelona, Spain, winner of Third Prize in Section C.

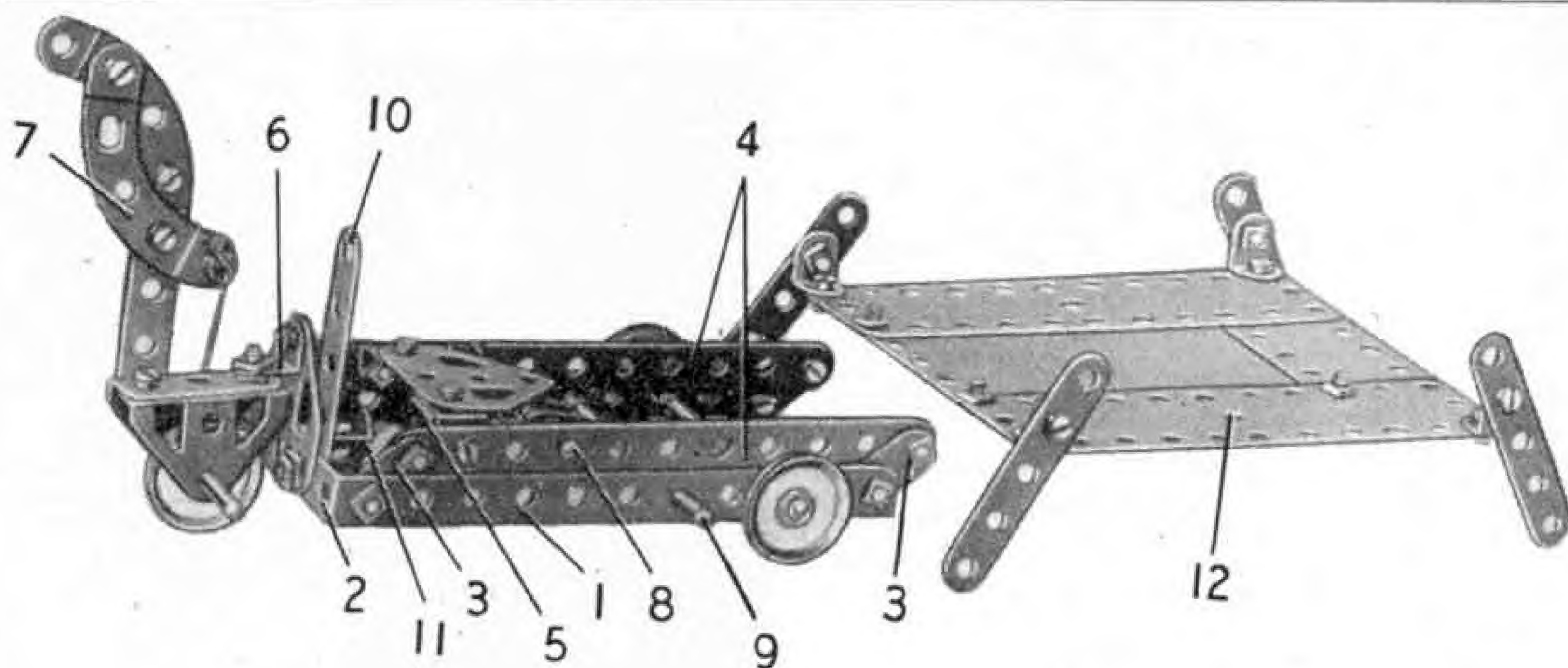
Bagshaw, R. B.; London S.E.26.
 Bencini, P.; Sliema, Malta G.C.
 Bienvenu, Jean; Ans, Belgium.
 Bierman, J.; Herpen, Holland.
 Blonk, F.; Leiden, Holland.
 Bremand, Guy; Thouars, France.
 Brock, R. N.; Renfrew.
 Clark, L. C.; Wattisham, Suffolk.
 Dalloni, Lucien; Castellane, France.
 Daniel, Roger; Liskeard, Cornwall.
 Desferet, Jean; Tourcoing, France.
 Gandoin, Yves; Paris.
 Glass, F. G.; Croydon, Surrey.
 Gsell, Roger; Colmar, France.
 Heywood, J. A.; Macclesfield.
 Heijn, P.; Amsterdam.

Henderson, G. S.; Edinburgh 3.
 Hurgonje, J. W. M. S.; Dublin.
 Kahn, Curt; Utrecht, Holland.
 Keates, G. H. W.; Cambridge.
 Keeling, Lt. Col. J. G. M.; Bicester.
 Langham, A. C.; Southampton.
 Lebas, A.; Cherbourg, France.
 Lewis, J. S.; Ferryside, Carmes.
 McCormick, C.; Benoni, Transvaal, S. Africa.
 McPherson, W. J.; Calgary, Alberta, Canada.
 Mattison, J. S.; Sydney, Australia.
 Merrells, L. A.; Ipoh, Malaya.
 Minshull, R. M.; Macclesfield.
 Orams, K. J.; Masterton, New Zealand.
 Pargeter, K. R.; Stourbridge, Worcs.
 Paul, Bernard; Pont Ste Maxence, France.
 Pearce, S. J.; Wardija, Malta G.C.
 Pleuven, Armel; Laval, France.
 Pollaert, Raoul; Petite Synthe, France.
 Pons, Jacqueline; Toulouse, France.
 Priestly, D.; Rushden, Northants.
 Retief, G. J.; Elsburg, Transvaal, S. Africa.
 Reynolds, E. W.; Birmingham 15.
 Ripoll, Christian; Algiers, Algeria.
 Roque, Marcel; Marseilles, France.

Rouge, F.; Lausanne, Switzerland.
 Roussel, Claude; Tourcoing, France.
 Russell, L. M.; Llandrindod Wells, Rads.
 St. Leger, R. G.; George, Cape, S. Africa.
 Santiago, J. P.; Talence, France.
 Stinson, S. A.; Brantford, Ontario, Canada.
 Taay, K. E.; Groningen, Holland.
 Tomas, T. H.; Rotterdam.
 (Continued on page 484)



A Prize of £5 in Section B, went to Michael Blatchford, Midsomer Norton, Bath.



New Meccano Models

Lifting Truck—Mixing Machine

The model Lifting Truck shown in Fig. 1 represents a type of truck used in factories for moving materials and goods in course of production from one place to another. The truck is provided with a load carrier that can be raised and lowered a few inches by pulling or pushing on the towing handle. The goods are placed on a special loading platform 12 mounted on short legs. The truck with its load carrier in its low position, is pushed under the platform, and the handle is then pushed down to raise the carrier and so lift the platform off the ground. The truck complete with its load can then be hauled to the required place.

The underframe of the truck is made from a $5\frac{1}{2}$ " Strip 1 on each side. These Strips are connected at each end by a $2\frac{1}{2} \times \frac{1}{2}$ " Double Angle Strip, one of which is shown at 2, and the bolts holding the Double Angle Strips in position are fitted with lock-nuts so that a Fishplate 3 on each bolt is able to move freely. The bolt is first passed through the Fishplate, and two nuts are then used to clamp the Double Angle Strip and the $5\frac{1}{2}$ " Strip tightly together. The upper ends of the Fishplates are connected by $5\frac{1}{2}$ " Strips 4, which are also attached by lock-nutted bolts. A Flat Trunnion is attached to Angle Brackets fixed to the Strips 4, and one of the bolts fixing the Flat Trunnion in position holds also an Angle Bracket 5.

A Flat Trunnion is bolted to the Double Angle Strip 2, and an Angle Bracket 6 is

fixed to it. Two Trunnions are pivoted on a $\frac{3}{8}$ " Bolt lock-nutted in the Angle Bracket 6, and a 1" Pulley is fixed on a 2" Rod mounted in the apex holes of the Trunnions.

The lifting mechanism is operated by a handle 7 made from a $2\frac{1}{2}$ " Strip and two $2\frac{1}{2}$ " Stepped Curved Strips. It is lock-nutted to the triangular hole of one of the Trunnions, with a Washer placed on each side of the hole to locate the bolt. A short length of Cord is tied to the handle as shown, and is passed through the centre holes in the Trunnions and the Double Angle Strip 2. The Cord is then tied to a 2" Rod 8, which is held by Spring Clips in the Strips 4. A $2\frac{1}{2}$ " Driving Band is slipped over Rod 8 and also over a $3\frac{1}{2}$ " Rod 9 held in Strips 1

by Spring Clips.

Strips 4 can be locked in the raised position by operating a lever 10. This is a $2\frac{1}{2}$ " Strip, and a $\frac{1}{2}$ " Reversed Angle Bracket 11 is fixed tightly to it by a nut on a $\frac{3}{8}$ " Bolt. The Bolt is then passed through Double Angle Strip 2 and is fitted with lock-nuts. The free lug of the Reversed Angle Bracket engages behind Angle Bracket 5 when the control lever is moved.

The load platform is made from two $5\frac{1}{2} \times 1\frac{1}{2}$ " Flexible Plates, a $4\frac{1}{2} \times 2\frac{1}{2}$ " Flexible Plate and a $2\frac{1}{2} \times 1\frac{1}{2}$ " Flexible Plate. The supporting legs are $2\frac{1}{2}$ " Strips.

Our next model is one of a very different type—a machine for mixing materials in various industrial processes. It is shown in

Fig. 1. Owners of Outfit No. 2 will find the workable Lifting Truck shown at the top of this page, an attractive subject to build.

Figs. 2 and 3 and is designed for Outfit No. 3.

The base of the model is a $5\frac{1}{2}" \times 2\frac{1}{2}"$ Flanged Plate, and to each side of this is bolted a $5\frac{1}{2}" \times 1\frac{1}{2}"$ Flexible Plate edged by two $5\frac{1}{2}"$ Strips 1. A *Magic* Clockwork Motor is bolted to one side of the model and a $2\frac{1}{2}" \times \frac{1}{2}"$ Double Angle Strip 2 is fixed between the sides.

The movable head that supports the mixing blade is made by connecting two $2\frac{1}{2}"$ Strips 3 on each side by a Fishplate. The Strips 3 are connected across by a $2\frac{1}{2}" \times \frac{1}{2}"$ Double Angle Strip held by a bolt 4 on each side, and by a $2\frac{1}{2}"$ Strip 5 fixed to the Strips 3 by Angle Brackets. The front of the head is completed by two $2\frac{1}{2}" \times 1\frac{1}{2}"$ Flexible Plates curved to shape, and two Formed Slotted Strips. These are held by the same bolts that fix the Double Angle Strip and the Angle Brackets in place. Two $2\frac{1}{2}"$ Stepped Curved Strips 6 are bolted to the Strip 5, and a $1\frac{1}{16}"$ radius Curved Plate is attached by Angle Brackets to the Strips 3 to form a cover plate. The Angle Brackets are opened out slightly.

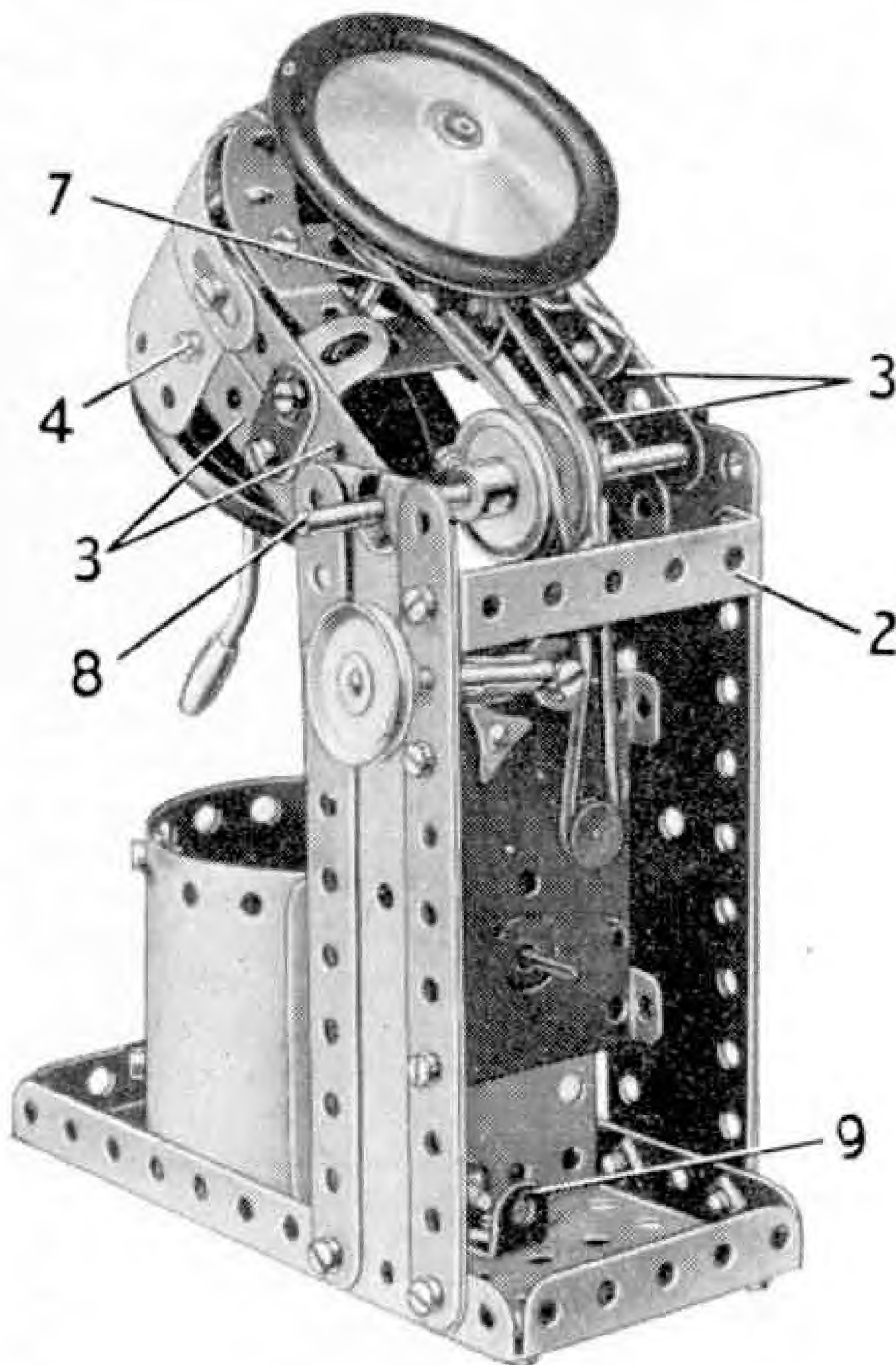


Fig. 3. A back view of the Mixing Machine showing how the *Magic* Motor is fitted and the drive to the stirrer.

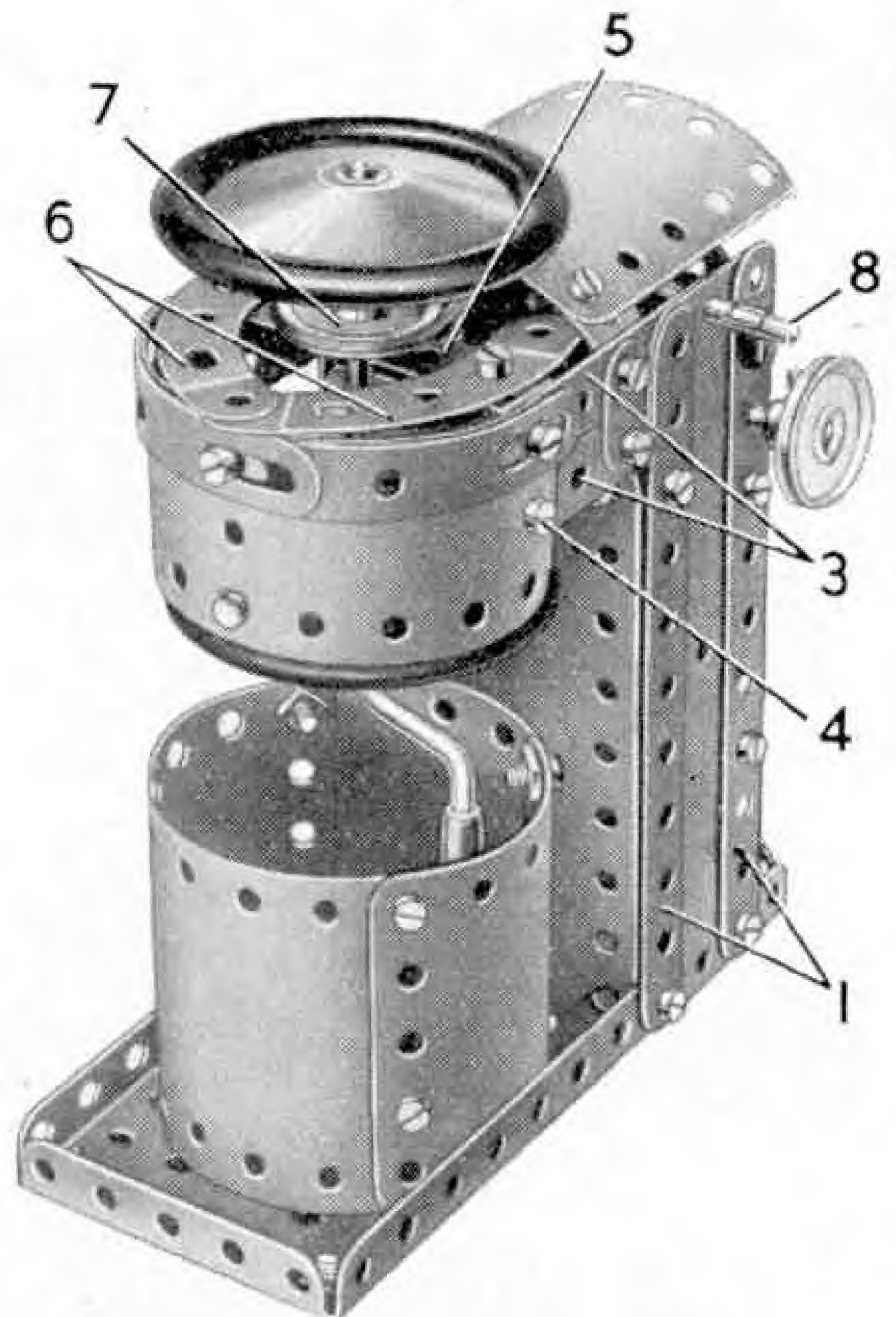


Fig. 2. A Mixing Machine of the type used in many industries for mixing materials. It can be built from Outfit No. 3.

The mixing blade is represented by a Crank Handle, and it is supported in the $2\frac{1}{2}"$ Strip 5 and in the Double Angle Strip held by the bolts 4. The Crank Handle is fitted with a 1" Pulley 7, spaced from Strip 5 by two Washers, and with two Road Wheels as shown.

The movable head pivots on a $3\frac{1}{2}"$ Rod 8 passed through the top holes of the upright column. The Rod is held in place by Spring Clips, and it carries two freely mounted 1" Pulleys. A Driving Band is passed round the Motor pulley, over the 1" Pulleys on Rod 8 as shown and round the Pulley 7 on the mixing blade. The *Magic* Motor brake lever is fitted with a Rod and Strip Connector attached by a lock-nutted bolt. A $1\frac{1}{2}"$ Rod is passed through the side of the model into the Rod and Strip Connector.

The front of the column is filled in by a $4\frac{1}{2}" \times 2\frac{1}{2}"$ Flexible Plate attached to the sides by Angle Brackets and to the base by a Double Bracket 9.

The bottom of the mixing bowl is made from two Semi-Circular Plates, and the side is attached to it by Angle Brackets.

HORNBY RAILWAY COMPANY

By the Secretary

"Over the Points"

A VERY young Hornby Railway owner once told me that "points are where the railways are joined together." When you come to think of it, this is not at all a bad description, for points form the means for bringing one track into another or, looking at things the other way round, they allow a branch track to turn out from a main line.

Points naturally form an important part of the Hornby System and without them a layout would not be a very exciting affair.

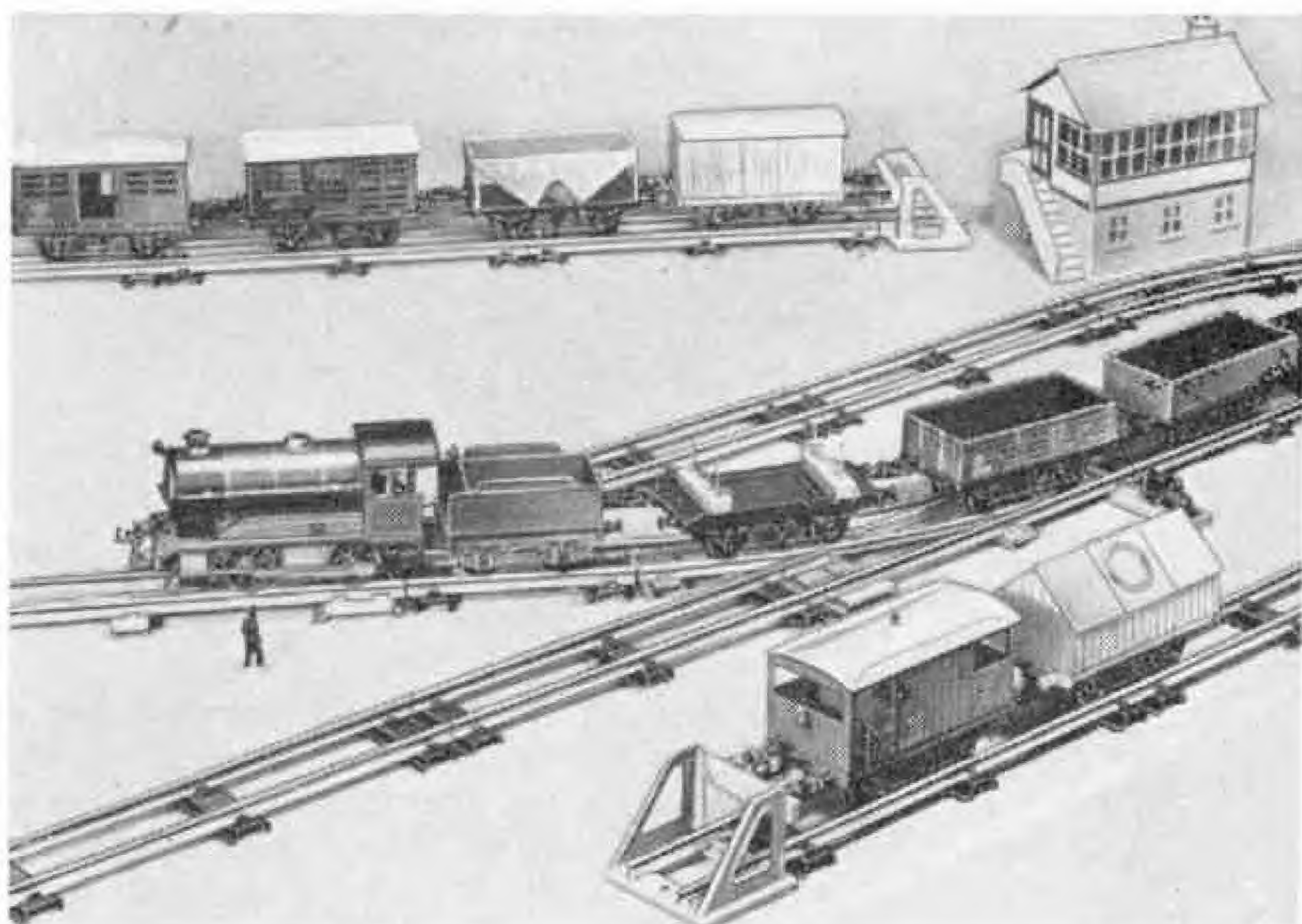
on which the points operating lever is mounted. This lever is a neat affair with a short weighted lever, just like the familiar "tumblers" that are frequently used in actual practice.

All Hornby Railway Engineers know how important it is to have their rail joints properly connected and this is specially important where Points are concerned. Make sure then that you use the connecting Plates for their intended purpose and that the special wire Points Connecting Clip

is used to anchor the switch rail end of the Points firmly to the next section of track. Owing to its box construction the points-lever sleeper is not adapted for use with a Rail Connecting Plate; hence the necessity for the Points Connecting Clip.

When Hornby Points are correctly used trains pass perfectly over them, whether running in the facing direction or coming from either of the tracks that converge at the Points, which are then passed over in what is called the trailing direction. Whether the Points are set for the straight run

or for the curve, the tapered end of the switch rails should lie closely up to the fixed or stock rail, so that the wheel flanges of the engine and its vehicles will pass smoothly along in the intended direction. At the opposite end of the switch rail unit the moving rails should come into correct alignment with the straight or curved rail to which they lead. Occasionally, after much handling, especially in the hands of junior operators, it may be found that the rails at this spot are slightly out of line. As a rule nothing more than a gentle bending of the switch rail unit is needed in order to put matters right. Finally, operate your points lever firmly, but not roughly, and the train will then run properly over the Points.



A Hornby Train shown here with its 501 locomotive is literally "Over the Points," a Right Hand and a Left Hand set of Points being used together to connect adjacent tracks.

There would be no sidings, no loops and no crossovers connecting tracks to each other, and our trains would be condemned to running up and down, or round and round, for ever. Clearly we must have Points!

Most of you know what Hornby Points are like, and that they are in two sizes, for 1 ft. and 2 ft. radius tracks respectively. It is useful to remember that the straight section of the Points is equal in length to the ordinary Hornby Straight Rail. Similarly the curved arm of the Points is equal in length to the standard Curved Rail of the corresponding radius. A useful detail of Hornby Points, from the beginner's point of view, is that the radius of the curve is marked on the extended sleeper

Hornby-Dublo in New Zealand

LAST month brief mention was made of the Hornby-Dublo layout developed by Mr. G. Simpson, of Cambridge, New Zealand, for his boys John aged 12, and Gilbert aged 5, whom you see in the top picture on this page. Now we are able to say something about the railway itself. This is not a complicated affair, but it is well arranged for operation on attractive and realistic lines.

The bottom picture on this page shows the actual track layout mounted on its baseboard, which has been reared up on its side to show the plan. The board is 8 ft. by 4 ft., and as the railway is permanently arranged on it, the owners

be carried out by remote control. Only the setting of the uncoupling ramp has to be done by hand.

The layout is a source of continuous enjoyment, not only to the owners themselves,



John, on the right, and Gilbert Simpson, of Cambridge, New Zealand, two keen Hornby-Dublo railwaymen.



A busy scene on their Hornby-Dublo railway with passenger, mixed and freight trains in operation.

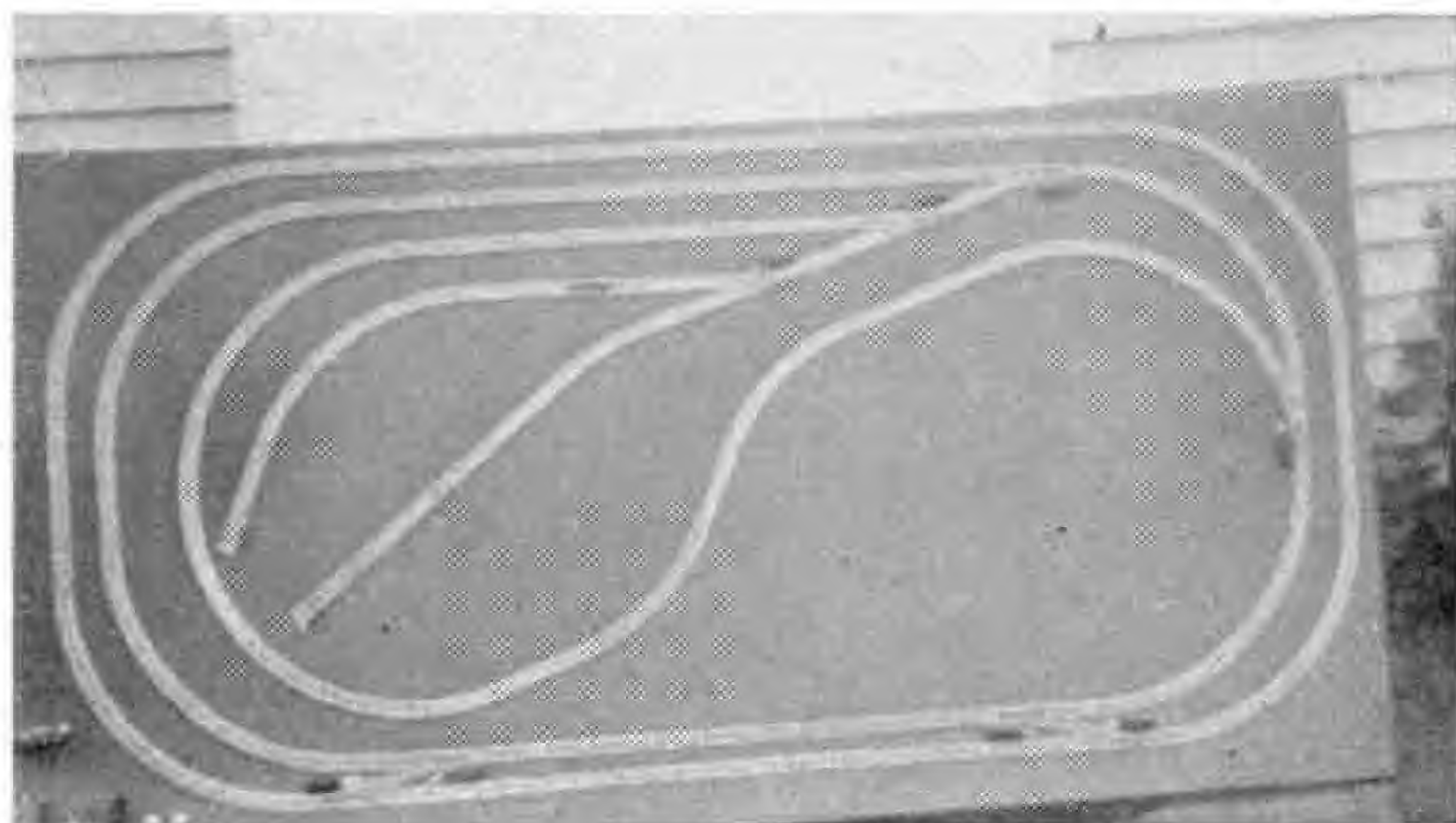
have the advantage that they are able to use it inside the house or out-of-doors.

As the picture shows, the line consists of a double track main circuit, with the inner and outer track connected in the usual manner by Points forming crossovers. Inside the inner circuit a branch line is taken off, which eventually develops into a return loop and forms a useful means of turning locomotives or complete trains. Within this return circuit are two sidings.

The Points in use on the system are electrically operated and a special feature is made of the isolating arrangements. With these, and with Uncoupling Rails for use in shunting vehicles and trains, the independent movement of locomotives and such attractive operations as engine changing can

but also to their friends. An element of friendly competition is introduced by the issue of "Drivers' Certificates" to visitors when they are capable of carrying out a full programme of train operations and engine changing without over-running Points or causing derailments. Needless to say, there is no lack of would-be drivers, all eager to gratify a life-long ambition on a miniature railway, if they cannot do so on a real one!

In addition to its normal use the system has on occasions been transported to John's school, where it has been the means of raising considerable sums of money in aid of various school activities.



A photographic plan of the Simpson layout mounted on its baseboard.

Building Up Train Movements

Real Railway Working on Hornby-Dublo Layouts

THE working of a real railway involves a great number of separate operations, most of them repeated many times, but not necessarily in the same order for each particular movement. Exactly the same thing applies to the working of miniature railways. In Hornby-Dublo particularly, with its remote control features, it is possible to reproduce closely the work of the real men on the line.

Those who do not know might think

as it is nearly time for the passenger train to depart we must do something about the goods train.

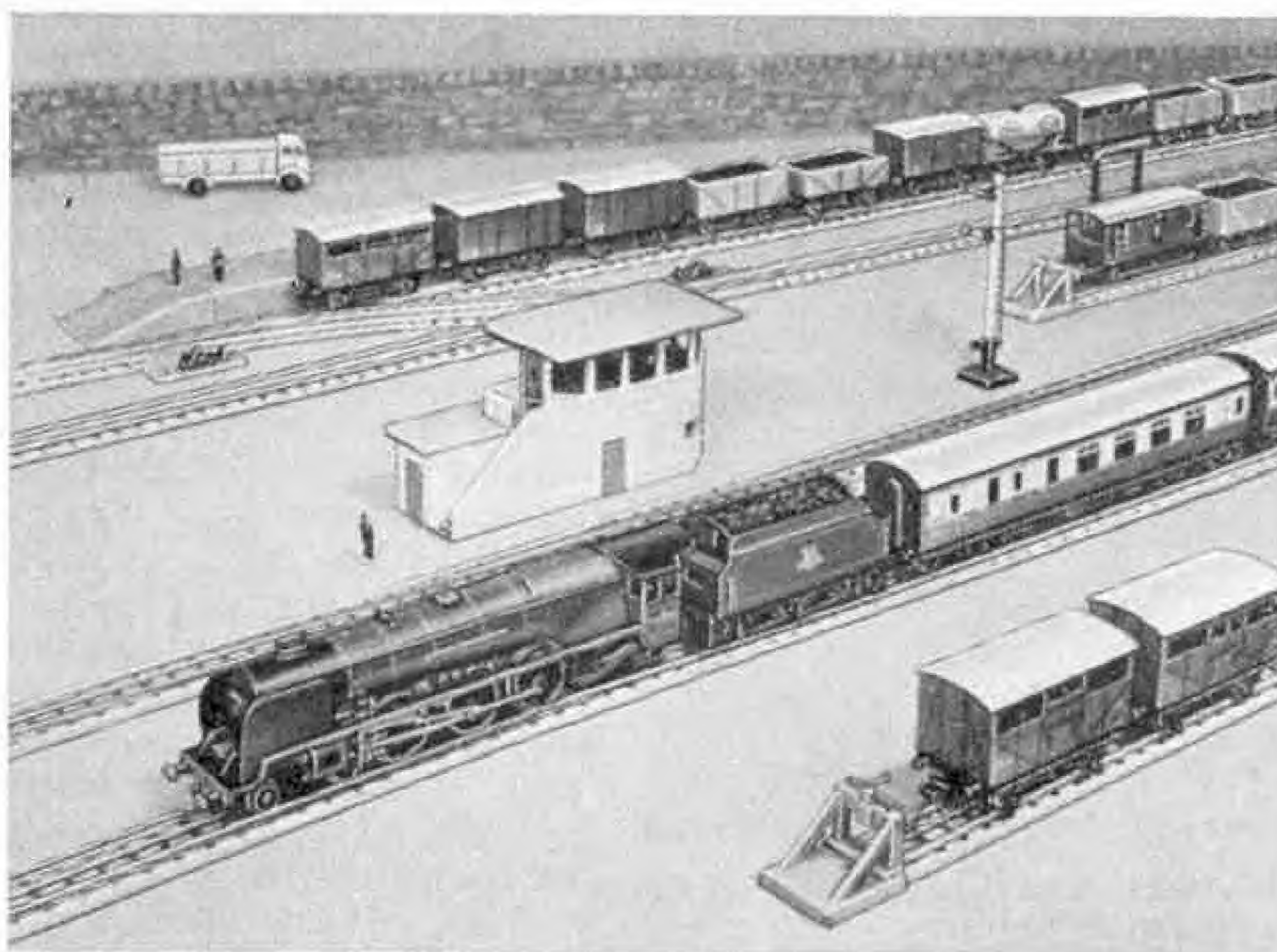
Perhaps we have a running loop conveniently situated and as this is empty we slow down the goods train, operate the Isolating Switch that will make the loop line "live" and then pull off the Switch lever to work the Electrically Operated Points that give access to the loop. These Points may be wired with the Junction

signal that protects them, so that as the switch-rails of the Points are put over the appropriate signal arm is raised. So the goods train is brought into the loop and gently stopped. The loop is switched out again, so that the engine of the goods train cannot move and the Points and Signals are restored to normal.

Now the way is clear for the express and this can make its pre-arranged run. If track and station arrangements permit it may be possible for us to give the goods train a further run while the passenger train is standing at an intermediate station.

There may be a running loop there that will allow the goods train to be "looped" round the passenger. If this is not possible then the goods train will have to wait until the passenger train has completed its run and is disposed of in a siding that can be isolated. This sort of thing is simple enough, yet it is tremendously fascinating and of course it reproduces the sort of work that is carried out every day on the real railways.

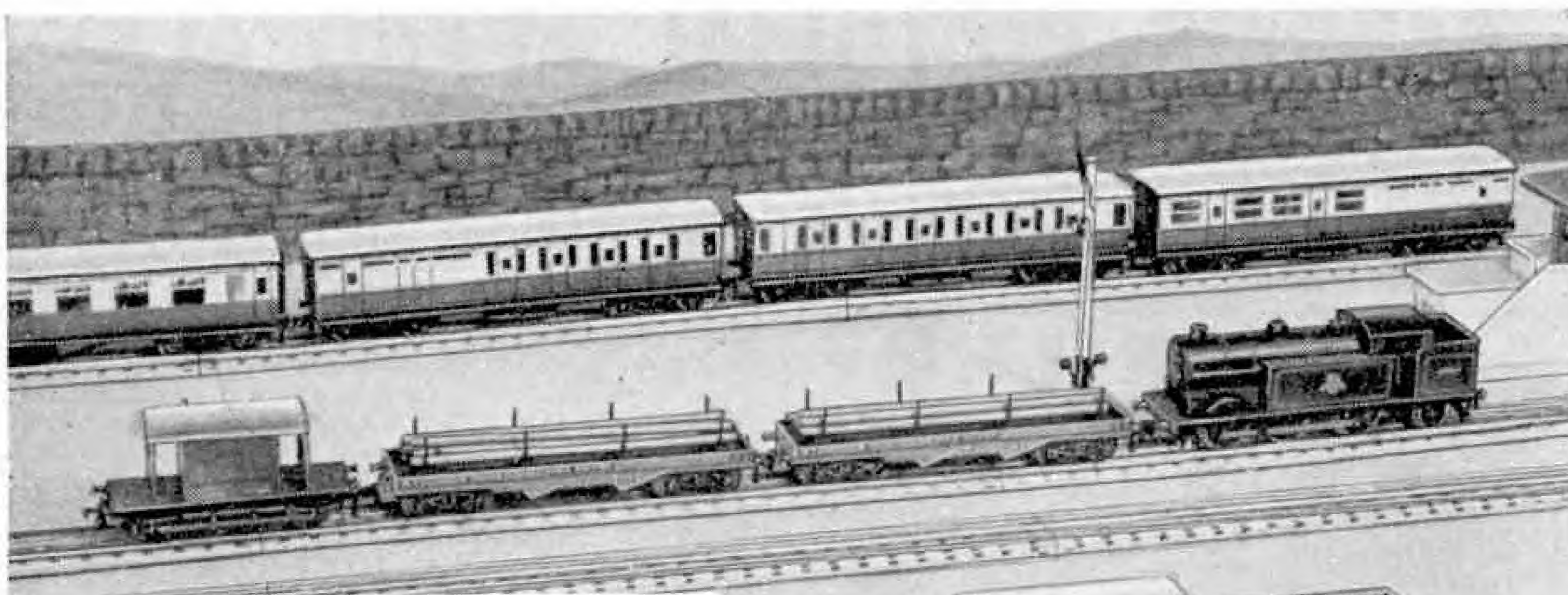
The general plan of a layout may be quite satisfactory, yet through the lack of a little imagination on the part of the Engineer it may not be possible for the operator to take the fullest advantage of the system. Thus a siding or loop line may not be quite long enough to accommodate the average train. This sort of thing would lead to some confusion if a



"Duchess of Montrose" proudly heads a Hornby-Dublo express past the Signal Cabin.

that such repetition would become monotonous, but every Hornby-Dublo owner knows that this is not true by any means. Layout conditions and the movements that the operator has in mind can vary to almost any extent. So the sequence of operations, which are the same in themselves, also will vary as one leads up to a particular movement or builds up a whole series of what we may term main operations.

To take a fairly simple instance, let us suppose that we have a goods train already on the move round the main line. We wish to bring into operation over the same track an express passenger train, which is ready made up with its engine attached in a siding near the station where it is to begin its run. We cannot have the two trains running on the same track and



Bogie Bolster Wagons loaded with Meccano Rods make an interesting special Train with a Hornby-Dublo Tank Locomotive in charge.



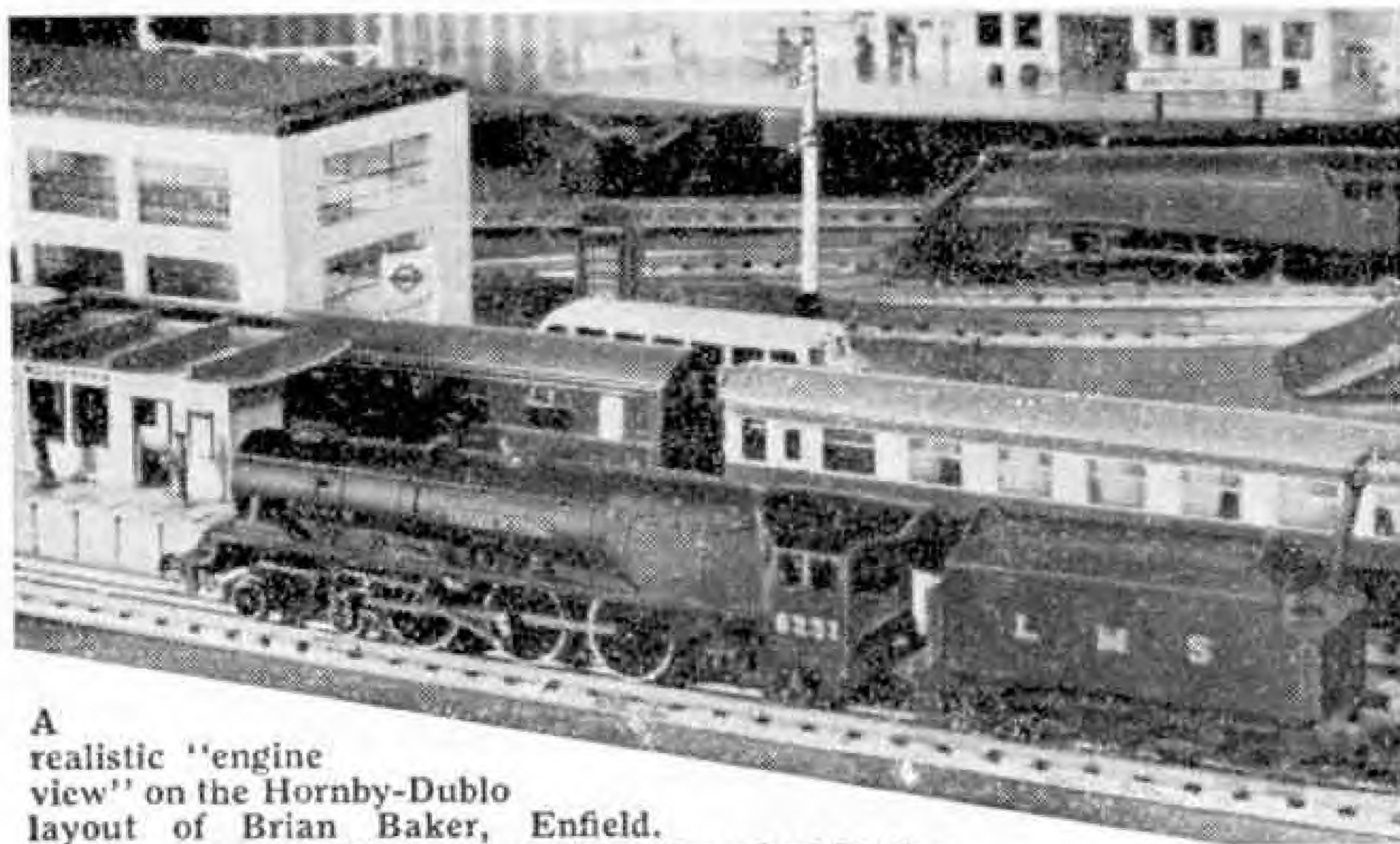
working programme including movements such as we have just described were being run through and the freight train could not be put out of the way. So measure your loops and stretch them out if necessary to take in the trains you run.

Similarly, the location of Isolating Rails and of Uncoupling Rails requires careful attention. Frequently we find that Uncoupling Rails are placed very close to the Points leading to the particular siding or loop in which they are located. This should be avoided, especially in a long siding, if wagons are to be shunted into the roads concerned and are expected to roll along well clear of the Uncoupling Rail. In a long siding it is useful to instal more than one Uncoupling Rail. One near the inner end of the siding can be very useful if a Brake Van or perhaps two or

three Wagons are to be left at that end. Another can be laid fairly near to the Points if it is intended that a complete train, such as a passenger set train, is to be placed in the siding and left by its engine until required for another journey.

If you have a goods yard, as all railway enthusiasts should, try to include a shunting spur in the opposite direction to the sidings, especially if the shunting engine has to emerge on the main line while at work. In these circumstances it is a good scheme also to make the yard a complete electrical section in itself, with its own Transformer and Controller. Yard operations will then be completely independent of anything that is happening on the main line.

By careful planning of the system, with attention to such details, and by gradual building up of our train movements we can develop a satisfactory train service. Working in this way is much more enjoyable than just running trains haphazard. This has been discovered by Brian Baker, Enfield, whose trains run to a timetable on the layout shown here. It was described in these pages last February.



A realistic "engine view" on the Hornby-Dublo layout of Brian Baker, Enfield. "Duchess of Atholl" is approaching Crawford Station.

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Stamp Collectors' Corner

By F. E. Metcalfe

THE FRIENDLY ISLES

THE recent visit of Queen Salote of Tonga to this country for the Coronation of Queen Elizabeth, has drawn attention to that romantic part of the world, the Friendly Islands, as they used to be called. All will remember seeing pictures in the newspapers of the majestic Queen, and after her triumphant rôle in the Coronation procession, collectors' have taken a great fancy to the stamps of the territory which she so

wisely governs. In view of all this, one cannot be surprised at the way the magnificent set of new stamps is being snapped up.

Some time ago I referred in my notes to



the set that Tonga issued in 1951 to commemorate the anniversary of fifty years of friendship with this country. I remarked that it was not easy to understand why Tongan stamps were not particularly popular seeing that many of them were so beautiful and relatively cheap. Anyhow, it looks as though there will be no need to wonder any longer. As the Crown Agents have supplied some very interesting details about the new set, I am sure that many will be glad to know what the various designs represent, but before I get down to that, a few words about the kingdom itself, as well as its previous issues, may not be out of place.

The Tongan or Friendly Islands form a group in the South Pacific Ocean. The largest of them is Tongatabu, and it is on this Island that we have the capital Nuku'alofa, where Queen Salote lives in her Royal Palace, shown on the new 1d. stamp.

Tasman discovered the islands as long ago as 1643, but it was Capt. Cook who later gave them the name of The Friendly Islands. It is said that there are still tortoises there which that great navigator gave as presents. Incidentally there has always been some argument as to whether the watermark on Tongan stamps represents turtles or tortoises. They will do for either, but I think they are supposed to depict the latter. Maybe Capt. Cook's gifts have some bearing on this, and it is interesting to note, that owing to the difficulty of obtaining supplies of this special paper during the war, the ordinary "C.A. Script" paper was used. It is a sign of more plentiful supplies that the latest set has been printed on paper with the tortoise watermark.

Tonga first issued postage stamps in 1886, when King George I was on the throne. Printed in



New Zealand, they merely show the head of the king and cannot compare with some of the later issues. They are not dear on the whole, and as

they generally sell at a good discount off what purports to be their value as given in the catalogues, one or two copies will not be beyond the reach of the average collector. Later, stamps were issued bearing the arms of Tonga, and in 1895 we got more lithographed stamps, this time bearing a portrait of King George II. There were many surcharges, and the earnest philatelist will have a grand time looking for shades and other varieties.

Now we come to the year 1897, when Tonga issued a really magnificent set. De La Rues were the printers, and the process used was recess. This set really hit the high spots with its native trees, coral views and a really gorgeous parrot forming the designs. Then in 1920 we had a set showing Queen Salote, who by now had ascended the throne.

Since then we have had several interesting commemorative sets. In 1938 there was one of three values, showing a full length portrait of the Queen, to commemorate the 20th anniversary of her accession. In 1944—take good note of this—five values of the same design were issued in honour of the Queen's Silver Jubilee, but there was one change, which could easily be overlooked. The date at the bottom of the stamp had been altered from 1918-1938 to 1918-1943, and as stamps with the first date are very much scarcer than those issued subsequently, you had better take a look to see which set you have.

Tonga, like all the rest of the world, issued in 1948 a "U.P.U." set, and in view of the world-wide interest in these Postal Union issues I am going to give an important piece of information, which recently appeared

in the *Commonwealth Courier*. The figures are official, and refer to the numbers of stamps actually sold—2½d., 141,790; 3d., 116,240; 6d., 114,500; and 1/-, 100,340. I am sure that the multitude of "U.P.U." collectors will fasten on to that exclusive data.

Now for some details of the set issued 1st July, which has evoked so much comment. The set comprises 14 stamps, and for the first time a 10/- and a £1 stamp are included. But don't be put off by that, for first of all the Tongan £1 is only worth 16/- sterling and, better still, a set to 1/- is very representative of the whole set; even a set to 3d. is not to be sniffed at, because the 3d. value is perhaps one of the most beautiful stamps ever printed. Incidentally our old friend Mr. J. Berry is the designer and Messrs. Bradbury, Wilkinson are the printers, and the process used is line engraving.

I have already mentioned that the 1d. stamp shows the Royal Palace at Nuku'alofa. Next, on the 1½d. we get a Tongan youth throwing a fishing net. Then on the 2d. we get a fine illustration of an Island Schooner used for communication and trade between the islands. But it is the (Continued on page 484)



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Stamp Gossip

THE NATIONAL GUARD

WITH the U.S.A. producing so many attractive commemorative stamps, which are easily and cheaply obtained, collectors look forward almost every month to a word or two about the latest of these. Well, we have a nice one this time. It is a 3c. blue stamp issued on 23rd February in honour of America's oldest military organisation—the National Guard.

The design is well worth study, for while the Guard is depicted in war on the right, on the left we see it doing one of its many peace-time tasks. Let it be said about the Americans, as can be said about ourselves, that while war service is fully appreciated, that which is done in peace is not considered in anyway second.

A copy of this interesting stamp is available used at about 2d. and mint about 4d. This is the case with most modern American commemorative stamps, and has a lot to do with their popularity.

FLOWERS ALL THE WAY

I recently remarked that the most popular thematic stamps had to do with ships. But with so many flower stamps being issued, if a little more imagination were exercised over the designs and colouring they would become a serious competitor, for as a nation we love both ships and flowers. The Swiss firm of Courvosier are printing a lot of these stamps. No one can deny their technical ability, but many of their designs seem to come out of the same pot.

The flower stamp illustrated is one of a long set issued by the Belgian Congo, and among other countries providing floral fare are Austria, Hungary and Portuguese Colonies. One commentator says that these Belgian Congo stamps look more like miniature cigarette cards than anything else. I am afraid there is something in the criticism, but at the moment at any rate they are very popular.

ADEN

To those who have never visited Aden, the very

name conjures up romance; those of us who have visited it—well, not to spoil the romantic picture, I'll say simply that there are more salubrious places in which to spend a holiday. Be all that as it may, Adenese stamps are exceedingly popular, and the new "QE" set issued on 15th June will add to that popularity, even though there has been some criticism about some of the designs, criticism that to me



seems somewhat misplaced. First of all, these designs are all original, something quite distinct from anything that we have had before; secondly, they do in some way represent a place like Aden.

In our enthusiasm to get the new set let us make sure that we do not overlook the one that has just been replaced. As a rule collectors are not keen about



overprinted stamps, but when in 1951, the then current stamps were surcharged to bring them into line with the changed currency, all stocks on hand in Aden were gathered together and surcharged.

There had been a number of printings, and one or two differed greatly in shade; remnants of most still existed in the Post Office and these were treated. Some of them must exist in very small quantities and all the best shades have been listed in the Commonwealth Catalogue. They are fairly cheap, and I can thoroughly recommend collectors to go after them before they go up, as they surely will.

NEW ZEALAND "HEALTH" STAMPS

Perhaps no set of stamps evokes more interest in the British Commonwealth than the annual New Zealand "Health" pair. Very popular subjects are generally chosen, and the cause is such a good one that each time more and more are sold. This year's choice is excellent. Girl Guides and Boy Scouts have the field to themselves for 1953, as the illustration of the 2d. + 1d. value shows. Incidentally, take a look at the outer frame. Can you make anything of it?

STARTING OUT

Though there has been no avalanche of QE stamps to date, quite a number of stamps have nevertheless already made their appearance, and those who intend to go in for stamps of the present reign and have not yet actually started their collection had better procrastinate no longer. Otherwise there will be a lot of leeway to make up. But a word of warning! Do not go in for sets to such a high face value that their purchase will be a strain.

About six pounds a year for the next two years should cover the outlay up to 1/- face. Add another five pounds or so if you decide to take up to 2/6, but if you want to go up to 5/- face, then you will need to double that sum. Getting on for a pound a week will be needed if you decide to collect to £1. Do not aim higher than your pocket can comfortably cover.

ALBUMS

Several collectors have asked my opinion about albums supposed to have places for all KG VI stamps. Perhaps they do have spaces for all face different stamps, and some perforation varieties, but none have made provision by a long way for all good shades. Moreover, none has allowed for perforation variations of 1/4 mm., and these are considered just as important, by the average KG VI collector, as are wider variations, for in many cases line and comb methods of perforating are concerned. Don't therefore spoil your fun. Get a plain album, and after you have the set as you want it, then arrange it on the sheet to your own liking.



1953 Paris Fashions—(Continued from page 446)

hear a lot more of the HD.31 and its jet-powered development, the HD.45, now being built to Government order.

Finally, a word about French helicopters. At the moment they are mainly experimental, but at least two of them show very great promise. The little SO.1220 Djinn has the simplest possible type of power plant, comprising a Turboméca Palouste compressor which drives compressed air through the hollow rotor blades to the tips, where the air is ejected to turn the rotor without being mixed with fuel and burned in the usual way. This seems an ideal arrangement for the cheap "flying motor-cycle" type of helicopter, and promises to reduce the present awe-inspiring noise of jet helicopters.

The 3-seat SO.1310 Farfadet is a very different proposition and is, in fact, the first turbine powered "convertiplane," with the vertical characteristics of a helicopter and forward speed of a fixed wing aeroplane. It has a 360 h.p. Turboméca Artouste turboprop in the nose to give it a cruising speed of 150 m.p.h. in forward flight, and a 360 h.p. Turboméca Arrius to supply compressed air to the tips of its rotor blades. Small fixed wings take much of the load from the rotor in flight and so add greatly to the aircraft's safety characteristics.

Sud-Ouest plan to develop a big helicopter airbus on the same lines as the Farfadet, and, if all goes according to plan, this aircraft may one day take care of Air France's short-range air services, while the forthcoming Avon-powered, twin-jet, 70-passenger SE.210 Caravelle transport flies the airline's medium-range routes.

At the moment, Air France, anxious to maintain their reputation as one of the world's greatest airlines, are re-equipping with fleets of British Comets and Viscounts, and American Super Constellations. But if the next generation of French aircraft are as good as they promise to be, British and U.S. companies might just as well cross Air France and the French Air Force off their list of potential customers!

MECCANO INTERNATIONAL MODEL-BUILDING COMPETITION**List of Prize-winners—(Continued from page 473)****Section C. (Prizes of £1 each):**

Treasure, H.; Weston-Super-Mare, Som.
Turner, P. E.; Queensbury, Nr. Leeds.
Uffindell, B.; Beckenham, Kent.
Vogel, A.; Haarlem, Holland.
Wallis, A. G.; Harrow Weald, Middlesex.
Wilkes, E. L.; Peterborough, Northants.
Williams, D. L.; Whitechurch, Cardiff.
Wood, R. A.; North Bondi, Australia.
Wood, S.; Queenborough, Kent.
Wrayford, C. E.; Bovey Tracey, Devon.

Stamp Collectors' Corner—(Continued from page 481)

3d. stamp that is such a beauty. This is what the Crown Agents say about the design: "Swallows' Cave, Vava'u. A scene in the interior of the cave showing a native in a canoe. Through the entrance a plane can be seen passing, emphasising the advance in

communications. The cave is so called because of the large number of swallows nesting in the roof." The dark green and blue colours make this a unique stamp.

Now we come to a typical Berry design, the 3½d., which shows a Map of Tongatabu, the main island of the group. The 4d. depicts Vava'u Harbour, claimed to be one of the most picturesque harbours in the Pacific. How some of us envy Queen Salote her journey to such a place! And of course the Post Office must not be overlooked. This appeared on the



This fine model of the Queen Mary, built by S. Hough, Melton Mowbray, was the central feature of a special Meccano, Hornby Train and Dinky Toys display by J. W. Warner and Son Ltd., earlier this year. Needless to say, it aroused keen interest, and hundreds of people paid special visits to admire it.

5d. value, and shows the building at Nuku'alofa.

It will have been noticed that planes appear on six of the stamps. Apparently they play a big part in modern island communications, so it is fitting that we should have a view of the Tongan Aerodrome. This can be seen on the 6d. stamp. We get a picture of the "Matua" on the 8d. and a map of all the islands on the 1/- value. The 2/- stamp shows a beach scene at Lifuka, but it is the 5/- value that will interest many, for the title given is the Mutiny of the *Bounty*, and a boat can be seen pulling away from that vessel. The 10/- stamp gives a good portrait of Queen Salote, and finally the top value depicts in somewhat vivid blue, red and yellow the Coat of Arms of Tonga.

Well isn't that a set worth having? Apparently many collectors think so.

A TIMELY WARNING

Recently, a boy flying a 'captive' model plane under an overhead electricity line received a fatal shock and burns when the plane gained height and flew on to the line. I should therefore like to warn readers of the possible danger of flying model planes and kites near overhead power lines. When model planes are linked to the operator by wire the risk is very serious.

THE EDITOR.

BACK NUMBERS OF THE "M.M."

A few copies of the following issues are still available:

1950 August.
1951 February, March, April, May, June, September, October and December.
1952 January, February, April, May, June, July, August and November.
Price 11d. each.
1953 April, May, June, July and August.
Price 1½d. each.

Readers wishing to obtain copies of these issues should write immediately to The Editor, "Meccano Magazine," Binns Road, Liverpool 13, enclosing a postal order for the necessary amount.

From Our Readers

This page is reserved for articles from our readers. Contributions not exceeding 500 words in length are invited on any subject of which the writer has special knowledge or experience. These should be written neatly on one side of the paper only, and should be accompanied if possible by original photographs for use as illustrations. Articles published will be paid for. Statements in articles submitted are accepted as being sent in good faith, but the Editor takes no responsibility for their accuracy.

ACROSS BRITAIN BY GREYHOUND COACH

Some time ago there were two articles in the *M.M.* describing a journey across the United States by Greyhound bus. It is interesting to know that a Greyhound bus service is run in England too. Daily express coach services linking London with Bristol and Weston-super-Mare are operated by Greyhound (Bristol Tramways and Carriage Co. Ltd.) jointly with Royal Blue (Western National and Southern National Omnibus Companies). The timetables are compiled so that in normal circumstances the respective company's vehicles spend the night at their home depot.

During last winter there were two direct journeys each way daily between London, Victoria, and Bristol, Prince Street, calling at Reading, Newbury, Marlborough, Chippenham and Bath. A Greyhound "feeder" service also connected Weston-super-Mare through Mid-Somerset and West Wilts. at Marlborough with the London-Bristol service once daily in each direction. Summer timetables are more comprehensive. Last year they provided six trips in each direction daily, with an additional each way journey on Wednesdays and Saturdays for a limited season only, and one of the six services linked London with Weston-super-Mare directly, besides the connecting service.

The Greyhound buses have coachwork by Eastern Coach Works of Lowestoft mounted on Bristol chassis. These chassis are designed and built by the Bristol Tramways and Carriage Co. Ltd. in their own works at Bristol, and are renowned for their reliability and economy.

Green painted mudguards and chrome embellishments break the otherwise all-cream finish of these graceful and comfortable coaches. Each coach carries on its sides a distinguishing mark, which can be seen in the upper illustration on this page, the central feature of which is a representation of a greyhound at speed.

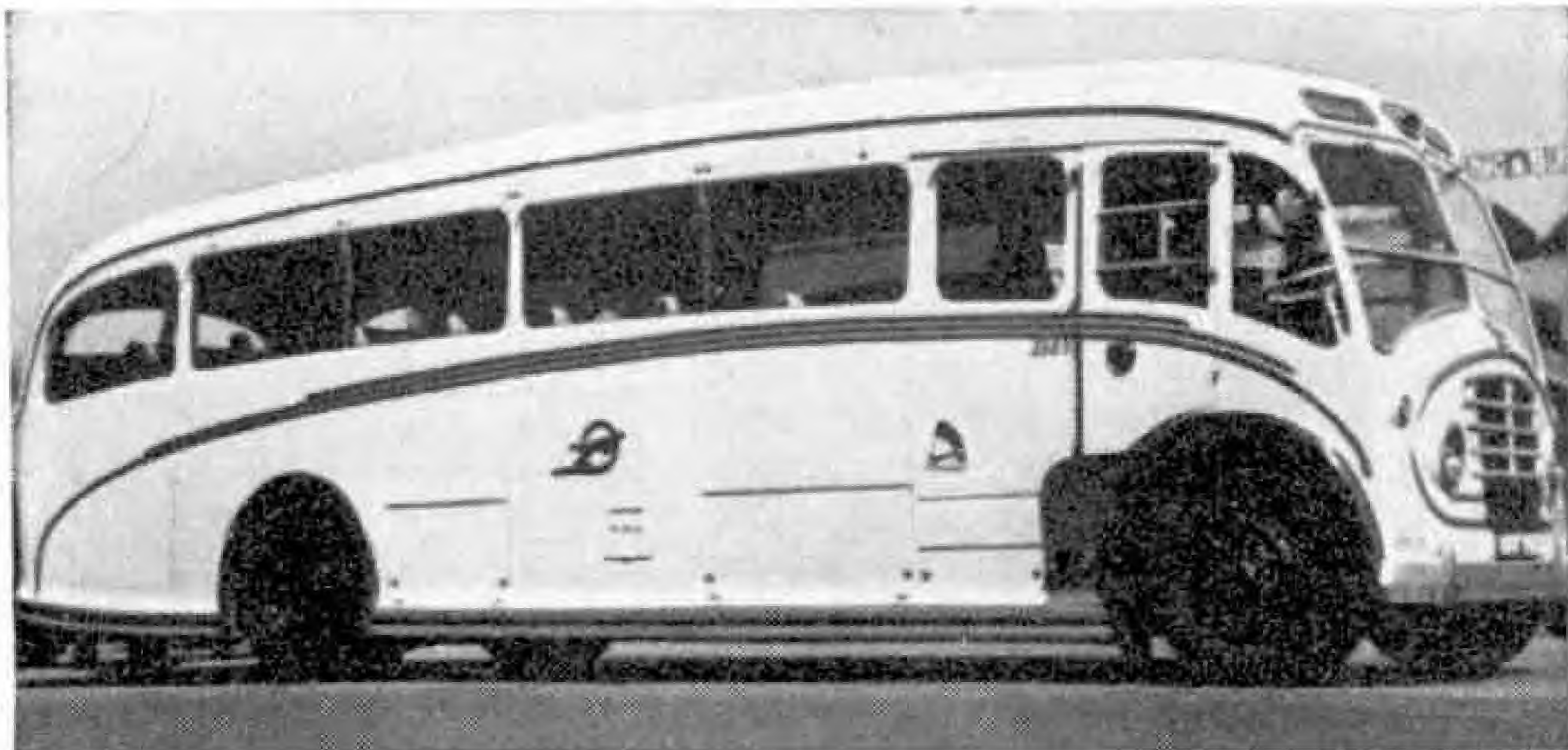
P. R. FORSEY (Bath).

SAINT FRANCIS CHURCH

Last month this church was four hundred years old. When it was founded, in what is now the centre of the city of Santiago de Chile, that is in the Bernardo O'Higgins Avenue, it was named the Hermitage of the Succour. What is worthy of being remembered is that the foundation was made by the Spanish

Conqueror, Pedro de Valdivia, and it was dedicated to the worship of the Virgin of the Succour. It is the most ancient church in the country and the only one that keeps its primitive walls, which are of the most extraordinary firmness.

This church is small, as it has only three naves, all of them very narrow, and thirteen altars. It has been rebuilt and extended, as can be seen in the photograph, and it now has a modern gate in its frontage and a tower of modern construction with



One of the coaches of the Greyhound bus service, which links London with Bristol and Weston-super-Mare. Photograph by P. R. Forsey, Bath.

a clock in it. It has a door at the north side and two at the south, one of these in communication with the cloister. Not far away from this door appears the following inscription: "The cornerstone of this church was laid on the Saturday, the 5th of July of 1572." It was completed in the year 1618, that is, forty-six years after it was commenced.

The convent of Saint Francis consists of various cloisters, one on the south side of the church is a big yard surrounded by two stone corridors, one composed of a series of stately arches on thick brick pilasters. There are twelve pilasters at each side. In the centre of the yard is a beautiful garden.

In our modern Santiago this magnificent ancient church reminds us of the beauties of the past.

The city itself was the first to be founded in Chile. Pedro de Valdivia was a companion of Pizarro, the conqueror of Peru, and in 1540 was sent by him southward to explore and conquer the country that is now known as Chile. It was in 1541 that he founded Santiago, where his little force withstood attacks by Indians for two years before reinforcements reached them. Later he conquered the southern part of the country, where he founded several other cities, one of which bears his own name.

CARLOS PARRAU
(Santiago, Chile).



The historic church of St. Francis, in Santiago de Chile. Photograph by Davis Ramos, Santiago.

Competitions! Open To All Readers

Prize-winning entries in M.M. competitions become the property of Meccano Ltd.
Unsuccessful entries in photographic, drawing and similar contests will be returned if
suitable stamped addressed envelopes or wrappers are enclosed with them.

An Aviation Figureword

Here is a competition that will be of particular interest to readers who are interested in aviation. It is concerned with aeronautical terms used in referring to certain parts or aspects of an aircraft, and there is also a sprinkling of names of actual machines. There are 10 words in all, each of eight letters, and in the diagram on this page there are 10 horizontal rows, one for each of these words, which readers are asked to find with the aid of the clues given here.

In the last column of the diagram are numbers marked "Horizontal Totals." These are made up by giving numbers to the letters of the alphabet, A being 1, B 2, C 3, and so on down to Z, the value of which is 26. The numbers representing the letters of each name must add up to the horizontal totals shown, and in addition the letters must be such that the vertical totals are those shown at the foot of the diagram.

As a help to make a start we give the first letter of the first name. This is H, the value of which is 8. Thus the first word required is one beginning with H, the horizontal total of the numbers represented by the letters being 97, and H contributes 8 to the first vertical total of 76.

There will be two sections in this Contest, for Home and Overseas readers

respectively, and in each prizes of 21/-, 15/- and 10/6 will be awarded for the three best entries in order of merit. The diagram must not be cut from the page;

H								97	HORIZONTAL TOTALS
								86	
								71	
								62	
								116	
								111	
								76	
								85	
								61	
								97	
76	101	133	88	116	118	92	138		VERTICAL TOTALS

entries must be made on separate sheets, and in the event of a tie judges will take originality of presentation into account. State your name, address and age.

Entries must be addressed *September Figureword Contest, Meccano Magazine, Binns Road, Liverpool 13*. Closing Dates: Home Section, 31st October 1953; Overseas Section, 30th January 1954.

Plan This Railway Tour

Imagine you are asked by a visitor to Great Britain to plan a tour of British railways in which he can cross our two longest bridges, see three transporter bridges, pass through the longest tunnel, traverse the longest stretch of underground track, ride on the only overhead railway in the country, see Britain's largest locomotive works and plant his feet on the longest station platform. What would you tell him to do?

The first thing is to name these features and say where they are. The tour is to begin in Liverpool and there must be as little changing and back-tracking as possible on the trip, which must end also in Liverpool, but not necessarily at the same station.

As usual, the competition is divided into two sections, for Home and Overseas readers respectively, and prizes of 21/-, 15/- and 10/6 will be awarded, together with a number of consolation prizes. Send entries to *September Railway Tour Contest, Meccano Magazine, Binns Road, Liverpool 13*. Closing dates: Home, 31st October 1953; Overseas, 30th January 1954.

September Photographic Contest

The ninth of our 1953 series of photographic contests is a general one in which we invite readers to submit prints of any subject. Each competitor may submit only one photograph, which must have been taken by him, and on the back of his print must be stated exactly what the photograph represents, also his age must be given.

The competition will be in two sections, A for readers aged 16 and over, and B for those under 16. Each competitor must state in which section his photograph is entered. There will be separate Overseas Sections, and in each section prizes of 21/-, 15/- and 10/6 will be awarded. Entries should be addressed: *September Photographic Contest, Meccano Magazine, Binns Road, Liverpool 13*. Closing dates: Home Section, 30th September; Overseas Section, 31st December.

Competitors who desire their entries to be returned should note the paragraph at the top of this page.

Competition Results and Solutions

HOME

APRIL 1953 NAMED TRAINS CONTEST

1st Prize: A. Davies, Sutton Coldfield. 2nd Prize: B. E. Smythe, Petersfield. 3rd Prize: J. Wood, Kingsley, Cheshire. Consolation Prizes: J. E. F. Blood, Haywards Heath; T. J. Smith, Birmingham 28; C. Catchpole, Reading.

MAY 1953 SLOGANS CONTEST

1st Prize: C. Granby, Morecambe. 2nd Prize: G. Isaac, Broadhembury. 3rd Prize: N. Sutcliffe, Warrington. Consolation Prizes: J. Porter, Wolverhampton; R. S. Outram, Sheffield 10.

MAY 1953 AIRCRAFT CONTEST

1st Prize: A. Allison, Upton. 2nd Prize: A. Sams, Redhill. 3rd Prize: G. P. Worthington, Shirley, Birmingham. Consolation Prizes: M. Gilbert, East Cosham; A. Harris Jones, Wallasey; J. Roberts, Saffron Walden; B. C. Maggs, Yeovil; R. C. Feltham, Petts Wood; G. P. H. Styant, Purley.

MAY 1953 PHOTOGRAPHIC CONTEST

1st Prize, Section A: F. G. Reynolds, Sidcup; Section B: A. Bond, Leigh. 2nd Prize, Section A: A. W. Tasker, Woodford Wells; Section B: D. Parkes, Hampton Poyle. 3rd Prize, Section A: H. E. Huxley, Ellesmere Port; Section B: J. K. Jones, Kegworth. Consolation Prizes: D. Jones, Brynmawr; G. H. Pursell, Wallasey; G. D. Temperley, Wakefield; E. Young, Shap, Cumberland; J. Payne, Bawdeswell; T. J. Fogarty, London S.W.18.

JUNE 1953 PHOTOGRAPHIC CONTEST

1st Prize, Section A: R. K. Evans, Hessle; Section B: D. Lee, Lytham St. Annes. 2nd Prize, Section A: A. W. Tasker, Woodford Wells; Section B: H. Underwood, Freshfield. 3rd Prize, Section A: J. Hampson, Farnborough; Section B: D. Moore, London N.7. Consolation Prizes: J. A. Searle, Ramsgate; D. A. Scott, Wombwell; J. Whytelaw, London N.2; D. Crowther, Halifax.

OVERSEAS

DECEMBER 1952 ADVERTISEMENT CONTEST

1st Prize: J. R. Gleave, Christchurch, N.Z. 2nd Prize: B. Griffiths, Takapuna, N.Z. 3rd Prize: M. Espitalier, Pretoria, S. Africa. Consolation Prizes: K. Kappelle, Thebarton, Australia; D. A. Hall, Plumtree, S. Rhodesia; C. Carlson, Westward Ho, Canada.

DECEMBER 1952 GIFT VOTING CONTEST

1st Prize: A. Bancroft, Bulawayo, S. Rhodesia. 2nd Prize: C. T. Tullock, Nairobi, Kenya, B.E. Africa. 3rd Prize: W. E. McCarroll, Lower Hutt, N.Z. Consolation Prizes: J. P. Molloy, Dublin, Eire; J. Donovan, Melbourne, Australia; B. Bates, Strathfield, Australia.

JANUARY 1953 WORD MAKING CONTEST

1st Prize: P. Distant, Singapore, S. 2nd Prize: D. A. Redmond, Dartmouth, Canada. 3rd Prize: P. J. Marais, Wynberg, S. Africa. Consolation Prizes: M. C. George, Muresk, W. Australia; R. Lubeseder, Prairie Echo, Canada.

JANUARY 1953 COVER VOTING CONTEST

1st Prize: M. M. Chappell, Beresfield, Australia. 2nd Prize: V. M. Suma, Santander, Spain. 3rd Prize: I. Da Cuy, Bombay, India. Consolation Prize: J. Fassin, Molenbeek, Belgium.

JANUARY 1953 PHOTOGRAPHIC CONTEST

1st Prize, Section A: D. Childs, Dublin; Section B:

H. Edon, Valetta, Malta G.C. 2nd Prize, Section A: B. Lambert, Durban, S. Africa; Section B: B. Wilson, Dunedin, N.Z. 3rd Prize, Section A: Cpl. Stentiford, R.E., Singapore, 28; Section B: A. Fogarty, Young, Australia. Consolation Prizes: M. Bromfield, Krugersdorp, S. Africa; D. McLennon, Wilberforce, Australia; A. Stroud, Invercargill, N.Z.; B. Poynton, Blackrock, Eire; T. Healy, Ballyphehane, Eire; H. Watson, Shankill, Eire; H. Balfour, Salisbury, S. Rhodesia.

FEBRUARY 1953 PHOTOGRAPHIC CONTEST

1st Prize, Section A: A. Farmer, Sydney, Australia; Section B: P. Cheveaux, Paris, France. 2nd Prize, Section A: J. Shelton, Lower Hutt, N.Z.; Section B: W. Jeffs, Johannesburg, S. Africa. 3rd Prize, Section A: M. Bedlington, Milford, N.Z.; Section B: J. Binnie, Tilburg, Holland. Consolation Prizes: T. Searson, Salisbury, S. Rhodesia; B. Fletcher, Dublin, Eire; J. C. Lennie, Dun Laoghaire, Eire.

FEBRUARY 1953 RAILWAY QUIZ

1st Prize: E. Burgess, Amsterdam, Holland. 2nd Prize: T. Hallhead, Oslo, Norway. 3rd Prize: K. Hein, Bombay, India. Consolation Prizes: D. Hynd, Nairobi, Kenya; M. J. Radford, Hamilton, N.Z.; G. Rajotti, Livingstone, N. Rhodesia.

SOLUTIONS

FEBRUARY 1953 RAILWAY QUIZ

1. The "Cowcatcher" or "Pilot." Removes straying animals or other obstructions. 2. A flared spark-arresting chimney, mainly used in North America in the days when wood was used as fuel. 3. Société Nationale Des Chemins de fer Belges. Chemins de fer Luxembourg. 4. I. K. Brunel, Royal Albert Bridge, Saltash. F W W. Building at Crewe Works. 5. Caboose. Boxcar. 6. Ex-L.S.W.R. Drummond 4-6-0. Very wide wheel splashers, suggesting the paddleboxes on a paddle steamer. 7. Highbridge. Retford. Newark. 8. London (Euston). 9. "Mogul" 2-6-0. "Consolidation" 2-8-0. "Texas" 2-10-4. "Santa Fe" 2-10-2. "MacArthur" 2-8-2 (formerly "Mikado"). 10. Tay Bridge, Scotland, 10,711 ft.

S	E	N	T	R	Y		P	E	T	A	L	S
A	D	O	R	E		H	E	A	R	T	E	N
L	I	T	A	N	Y		A	R	E		G	O
V	C		I	D	O	L		L	E	V	E	R
A	T	O	N	E		A	S	S		O	N	E
G			E	R	E	C	T		O	L	D	
E	M	I	R	S		K		F	L	E	S	H
	I	T	S		D	E	F	O	E			U
I	R	E		P	A	Y		L	A	I	R	D
D	A	M	A	R		S	P	I	N		O	D
I	N		N	E	E		R	A	D	I	A	L
O	D	D	N	E	S	S		G	E	E	S	E
M	A	L	O	N	E		M	E	R	I	T	S

March 1953 Crossword Puzzle.

Fireside Fun

"Doctor, come quick. My boy has swallowed a shilling."

"A shilling! What age?"

"I think it's 1948."

"I don't like all these insects creeping about here."

"All right. Show me which you do like and I'll kill the rest."

"You like Scott surely?"

"Oh, yes, everything he wrote is fine."

"Ivanhoe," "Quentin Durward" and "Sir Nigel," I suppose?"

"Oh, yes, they are all splendid."

"And his Emulsion too?"

"Oh, yes, the best of all, I think."

Stationmaster (rushing out of his office): "What was all that shouting about, porter?"

Porter: "A passenger ran on the platform just as the 10.0 was leaving, sir."

Stationmaster: "Did he catch it?"

Porter: "Yes, but it got away from him again."

"Now, boys. I am going to drop a shilling in this acid. Will it dissolve or not?"

"Not, sir."

"Right, and how did you know that?"

"Because you wouldn't drop it in if there had been any chance of losing it."

"Yes, my boss has the worst memory in the world."

"How on earth does he get on if he forgets things like that?"

"He doesn't forget them. He remembers everything!"

"So you're not going to marry the chimney sweep, after all, Jane?"

"No, mum, I shall have to stop with you, if I may."

"But why did you give him up?"

"Well, mum, I found he was really ugly when his face was washed."

"If your father can do a piece of work at home in an hour, and your mother can do it in two hours, how long would it take if they worked together?"

"Please, sir, have we to count in the time they would spend arguing about how to do it, and when?"

"Yes, children, Sir Isaac Newton was sat in his garden thinking when an apple fell on his head. And from that he discovered the law of gravitation. Now wasn't that wonderful?"

"Oh, I don't know about that," said the smart boy. "But it's certain he wouldn't have discovered anything if he had just been sitting here in school, isn't it?"

"Boy, do you know the number of the house Mr. Smith lives at?"

"No, sir, but don't worry. You'll find it painted on the door."

"Hello, you're still here! I thought you were going away for a holiday."

"I thought so too, but I was let off with a fine."

BRAIN TEASERS A TRAFFIC MIX-UP

Let us start with an easy one. Here are a few assemblies of letters that can be turned into real words, each of which is the name of a motor lorry or commercial vehicle of some kind: LIANBO; RAIERRK; OTRAJN; HFOOTTRNYCR; EDDOG; KOATINSN; ELCVHROET; LETESNIN; CVALUN; MMCOER; and FOWERDD.

You will enjoy altering the positions of the letters to try to find these names. See how many you can discover! M.S.

WHAT CAN YOU GATHER HERE?

Below are two quite ordinary looking names and addresses. These are peculiar, however, in that with the letters of each a proverb can be made.

GEO. F. L. BROOK, MR. STRONG,
HEATH STREET, SALOON ST.
CARDIFF, LEIGH-ON-SEA.

Can you find the proverbs?

FIND THE ANIMAL

Nowadays every boy knows something of the use of code words in opening safes. Suppose that you have a safe of this kind with three dials on it, round which are the letters shown below:

1, COIGLE; 2, VSCOBN;
and 3, PUARYZ

The owner of one of these safes was an animal lover and for his key word of three letters naturally he chose the name of an animal. Which three letters would you dial to allow you to open his safe? E.B.P.

CAN YOU READ THIS VERSE?

I took out all the vowels in a very familiar verse from a poem that is well known to almost everybody. The result had a very unfamiliar look about it. Here it is:

Thcrfwllsthnllfprngdy,
Thlwnghrdswndslwlyrthl,
Thplghmnhmwrpldshswrywy,
Ndlvsthwrldtdrknsndtm.

Do you recognise the verse?

LETTERS TO FIGURES

I have given you many interesting puzzles in which sums expressed in letters have to be changed to the more usual kind, in which figures are used. But I cannot resist giving you this new example. It will perhaps help to draw attention to the present-day need for taking more care on our roads.

CROSS
ROADS

MAL

DANGER

S.W.C.

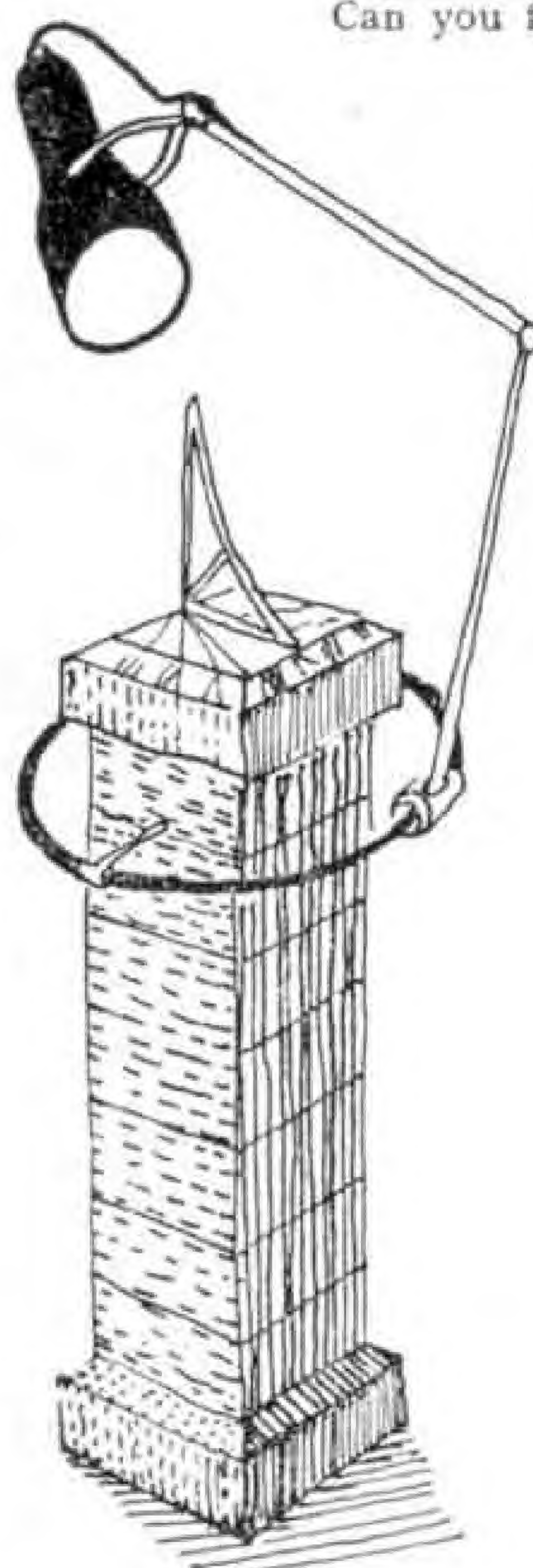
Wot! No sun?

SOLUTIONS TO LAST MONTH'S PUZZLES

I am sure that every reader soon discovered that the divisor in our first puzzle last month was 13 and the dividend 637, so that the number represented by TNAG was 8290.

Our second problem was really a catch, of the type that it is hoped will tempt the solver into beginning weighty calculations on paper. The point is that however much the stones used in building the wall weighed, they would be dug out of the Earth, which therefore would be no heavier at the end of the wall building than it was at the beginning.

Keeping a clear head in struggling with the intricacies of our third problem readers should have no difficulty in finding that the despatch rider would reach the head of the column at the end of the day's march. Perhaps after all a clear head was not needed, as this problem is really quite easy.



Must be won— PRIZES WORTH OVER £100!



In conjunction with the Second Annual National Handicrafts and Hobbies Exhibition at the Central Hall, Westminster, from September 17th - 30th, Hobbies Weekly is organising a Grand Fretwork Competition. The prizes are valued at over £100. Full details of the competition and how to enter will be contained in the September 16th issue of Hobbies Weekly. Make sure of your copy by ordering now. Price 4d. from any newsagent, or direct from Hobbies Ltd., Dept. 96, Dereham, Norfolk, Price 5d. post free.



*We are at the
Handicrafts Exhibition
Central Hall
Sept 17-30th*

HOBBIES 1954 HANDBOOK



- * *Free Design for a Model Farmyard.*
- * *Instructions for Fret-saw Inlay.*
- * *Coloured Cut-outs of Famous Footballers.*
- * *"How-to-Make" Articles.*

Price 2/- from newsagents, or direct from Hobbies Ltd., Dept. 96, Dereham, Norfolk, Price 2/3, post free.

NOW ON SALE!



Puppets for children of all ages. Hand-made and beautifully dressed, they introduce a new and fascinating hobby into the home, which will captivate the interests of grown-ups too, making it a worthwhile and happy addition to the Family Circle.

DISJOINTING SKELETON ..	36/9	Post 9d.
McBOOZLE, Opening Mouth ..	36/9	"
Mr. TURNIP, T.V. Star ..	30/6	"
MICKEY MOUSE ..	30/6	"
MINNIE MOUSE ..	30/6	"
PINNOCHIO ..	30/6	"
NODDY (Enid Blyton) ..	30/6	"
PUPPET THEATRE ..	52/6	Post 1/3
PUPPET SCENERY ..	12/3	Post 3d.
PUPPET KITS ..	7/10	"

Send for Latest List NOW

**68 DARWEN STREET
BLACKBURN
DEPT. M**

MERCERS

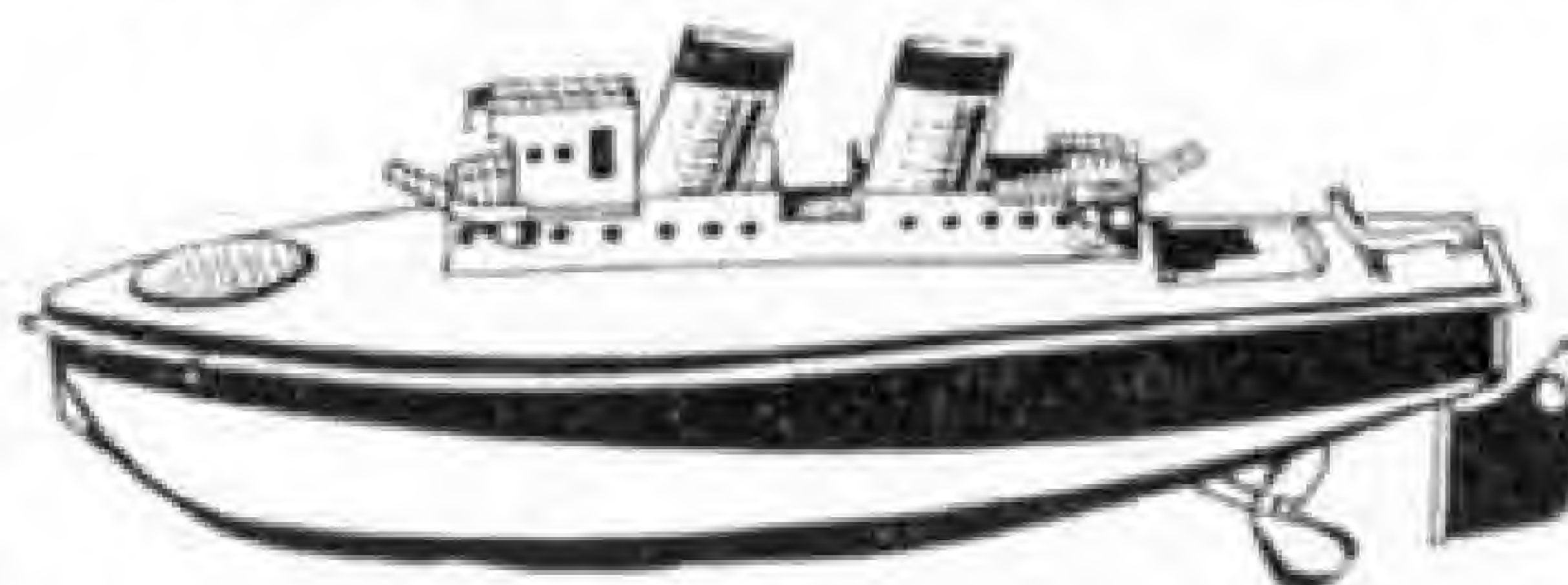
EST. OVER 50 YEARS

SHIP AHOY!



Sail this Penguin Ocean Racer yourself! She's as seaworthy a ship as ever sailed. Her precision moulded plastic hull is 16 in. long, mast 17½ in. high. With a fine spread of sail, automatic rudder and her own dinghy. She costs only 26/3.

Packaging and postage 2/-.



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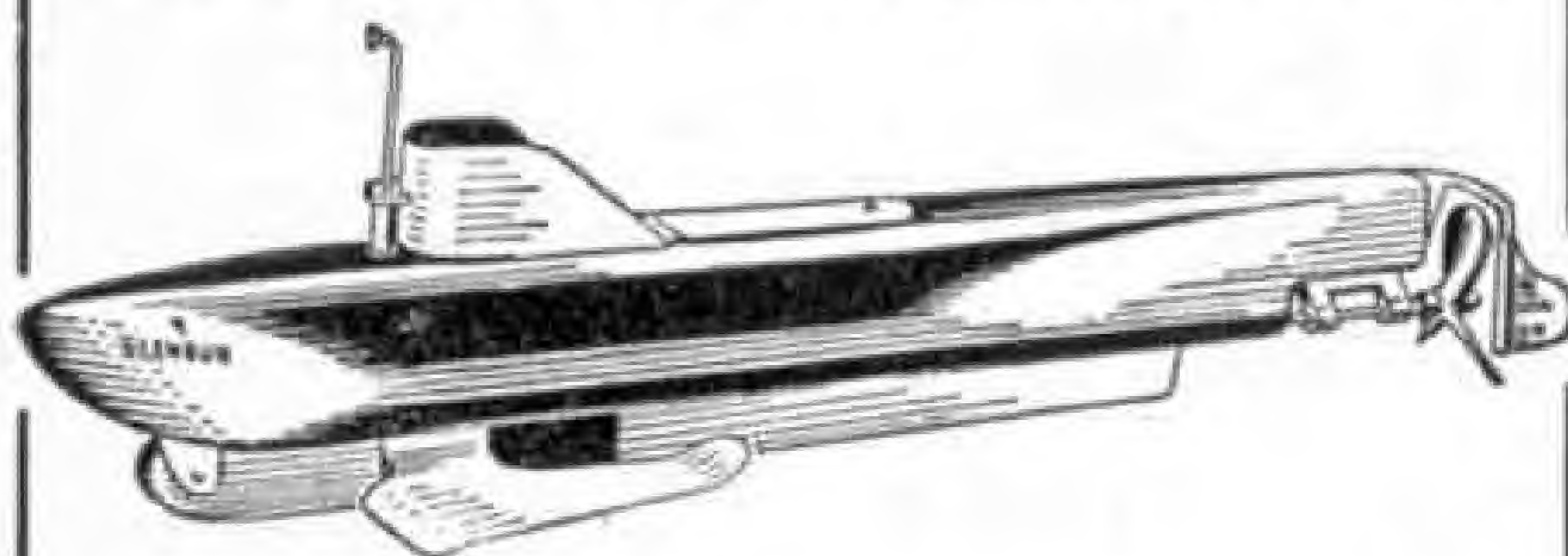
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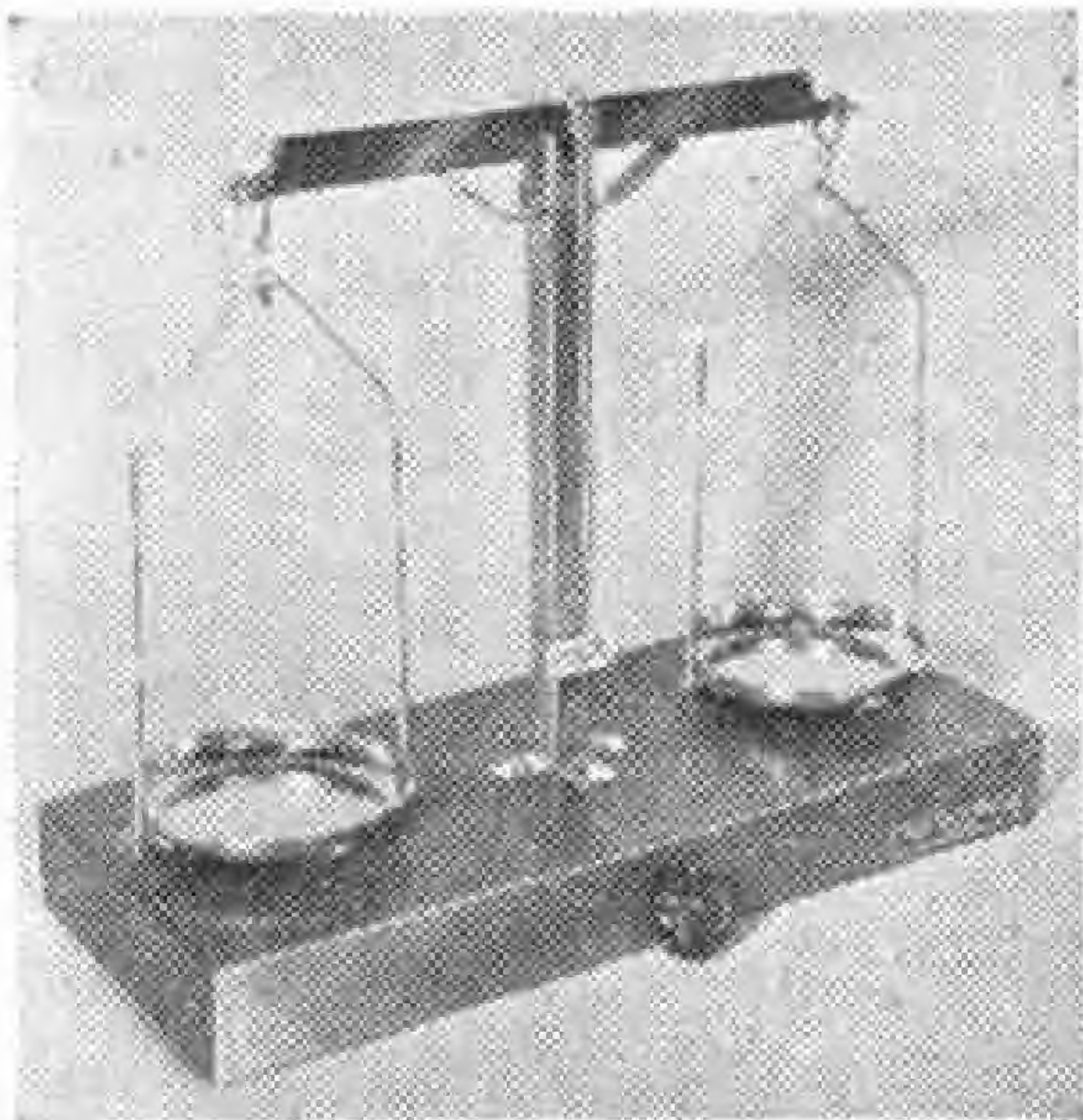
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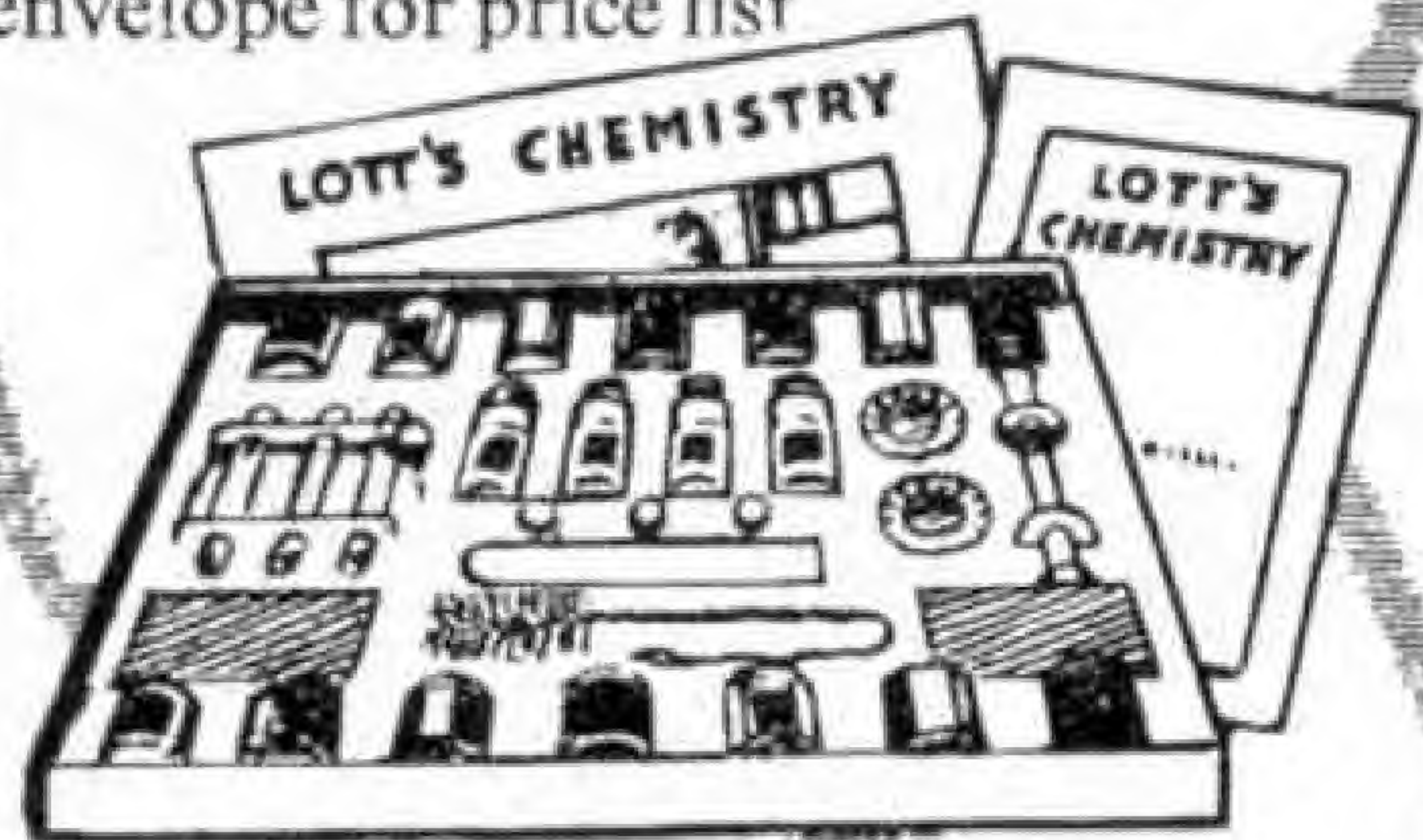


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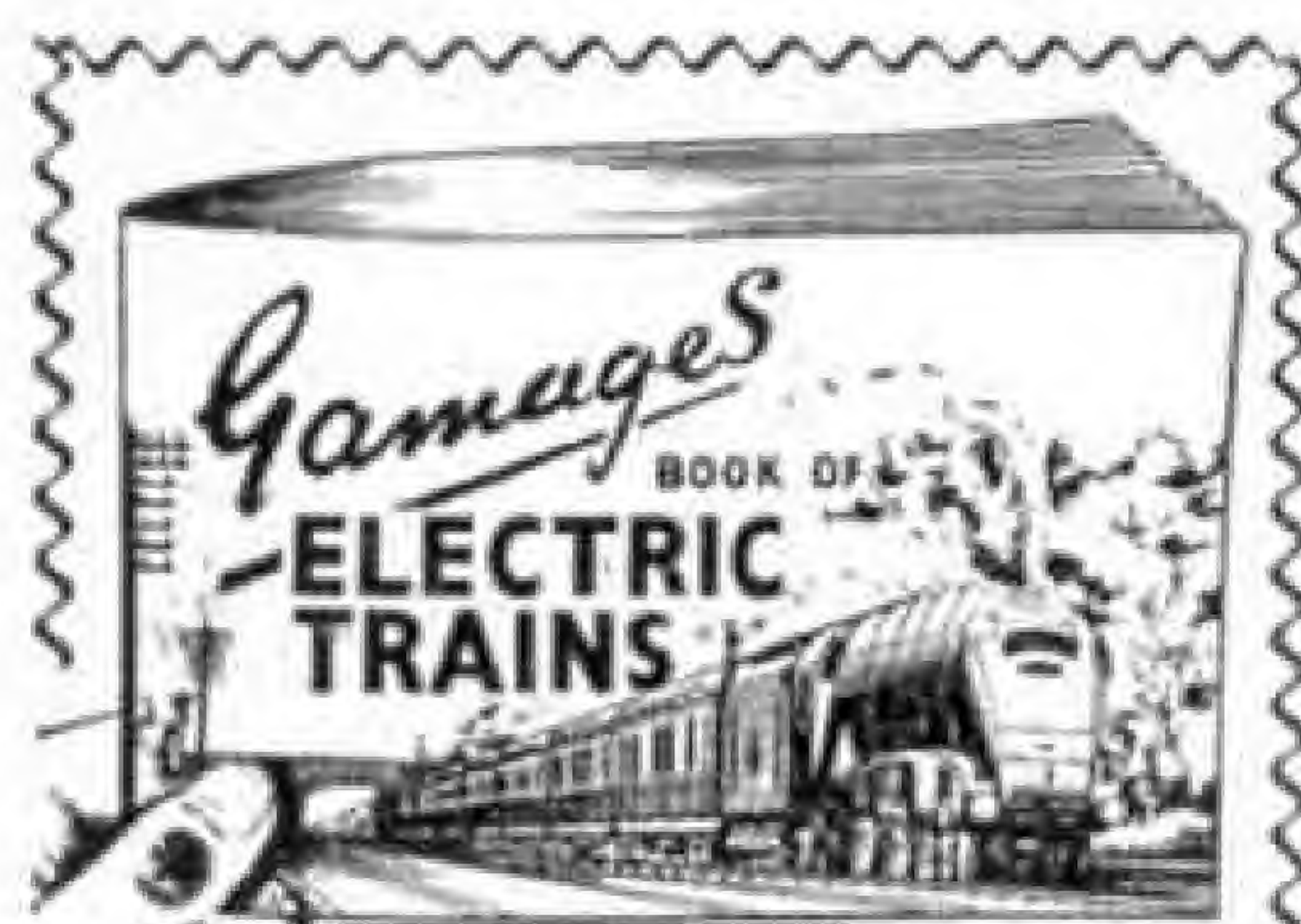
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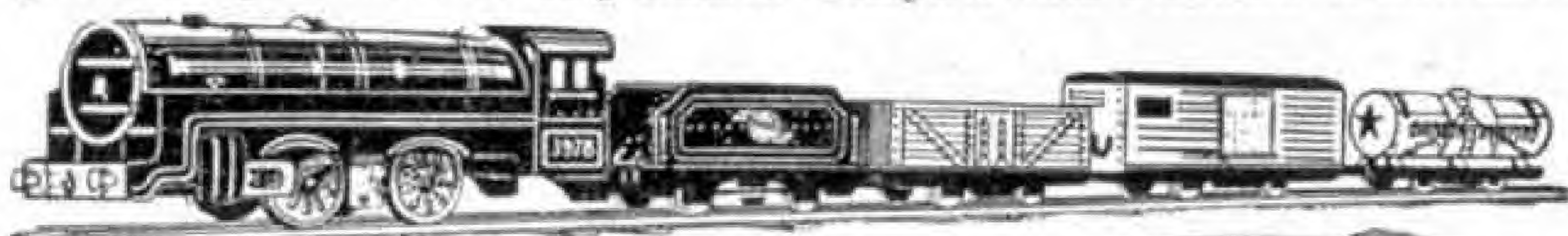
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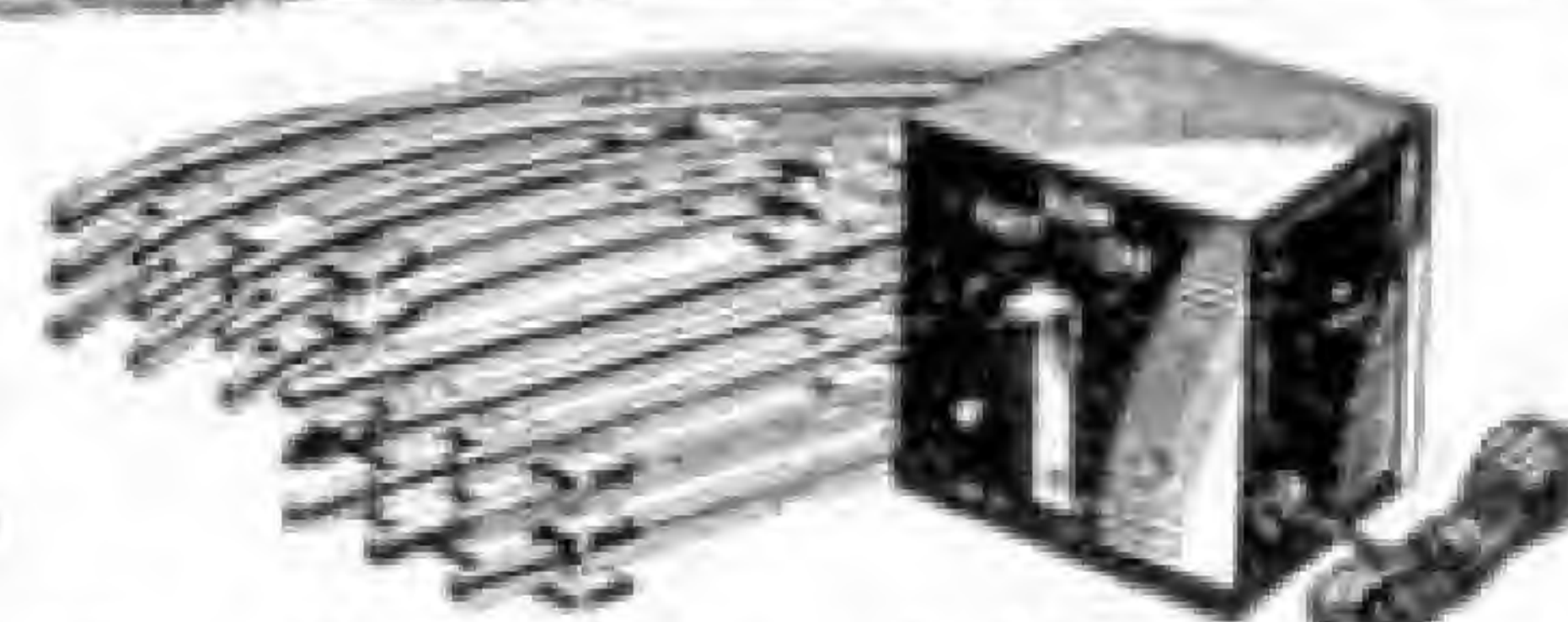
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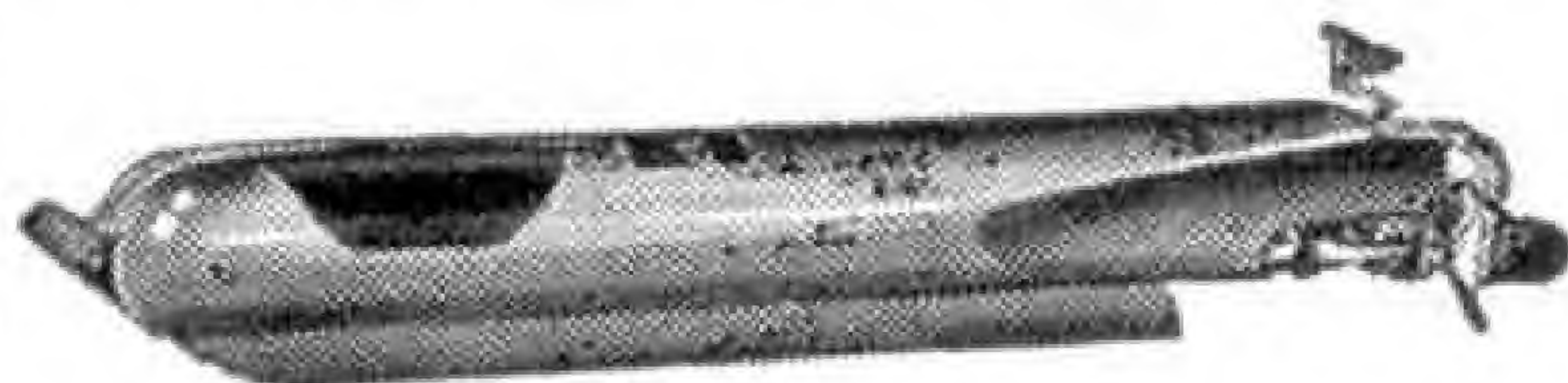
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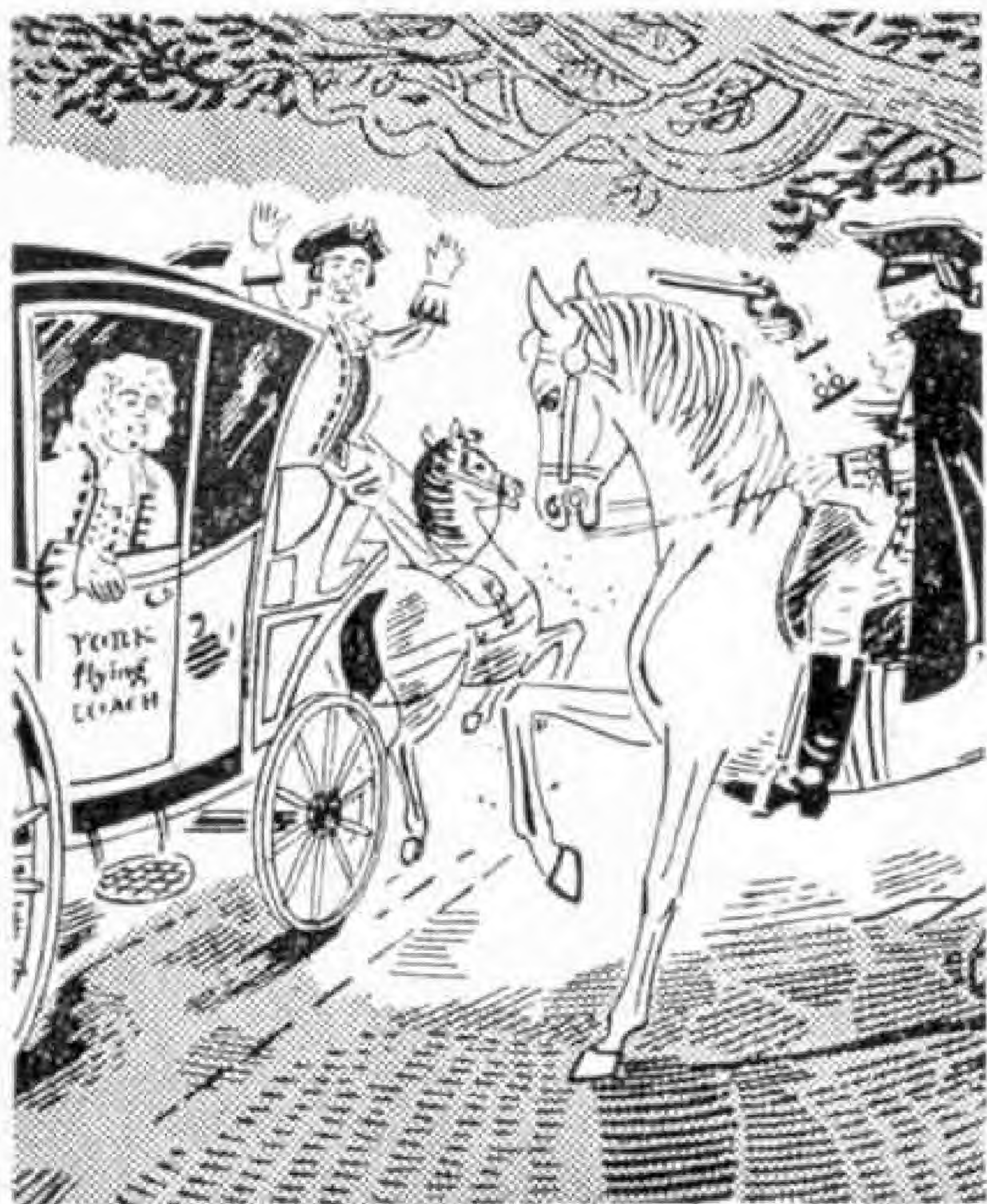
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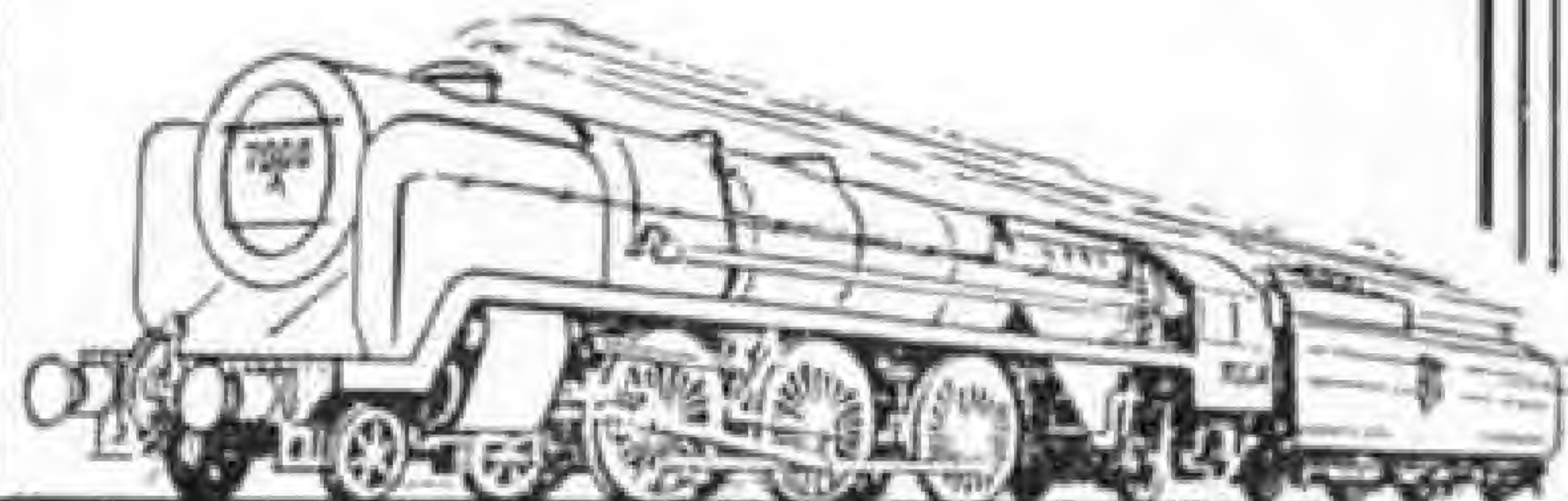
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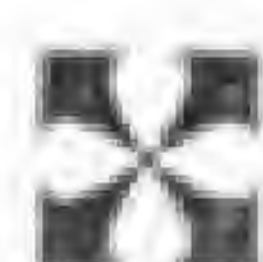
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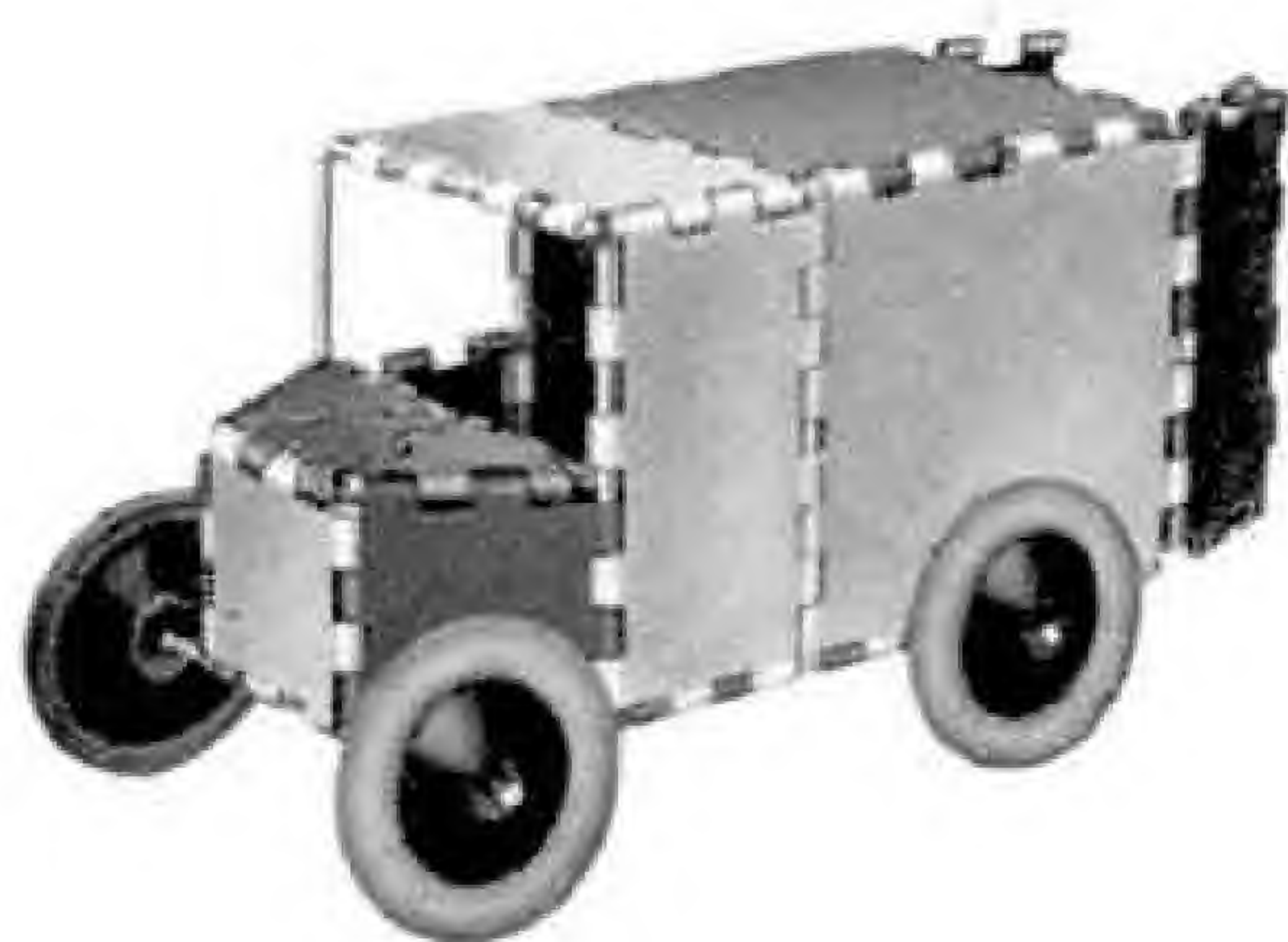
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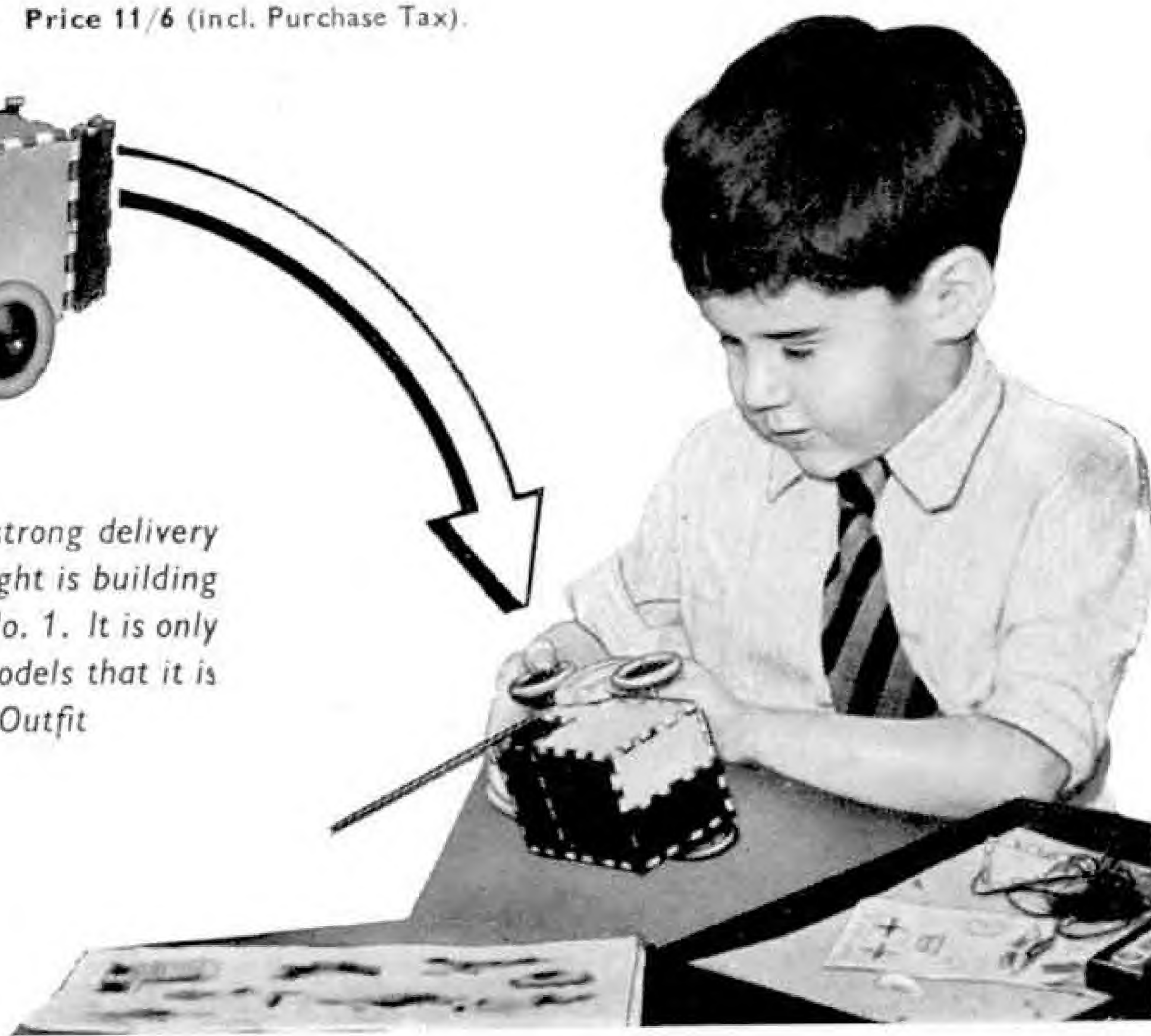


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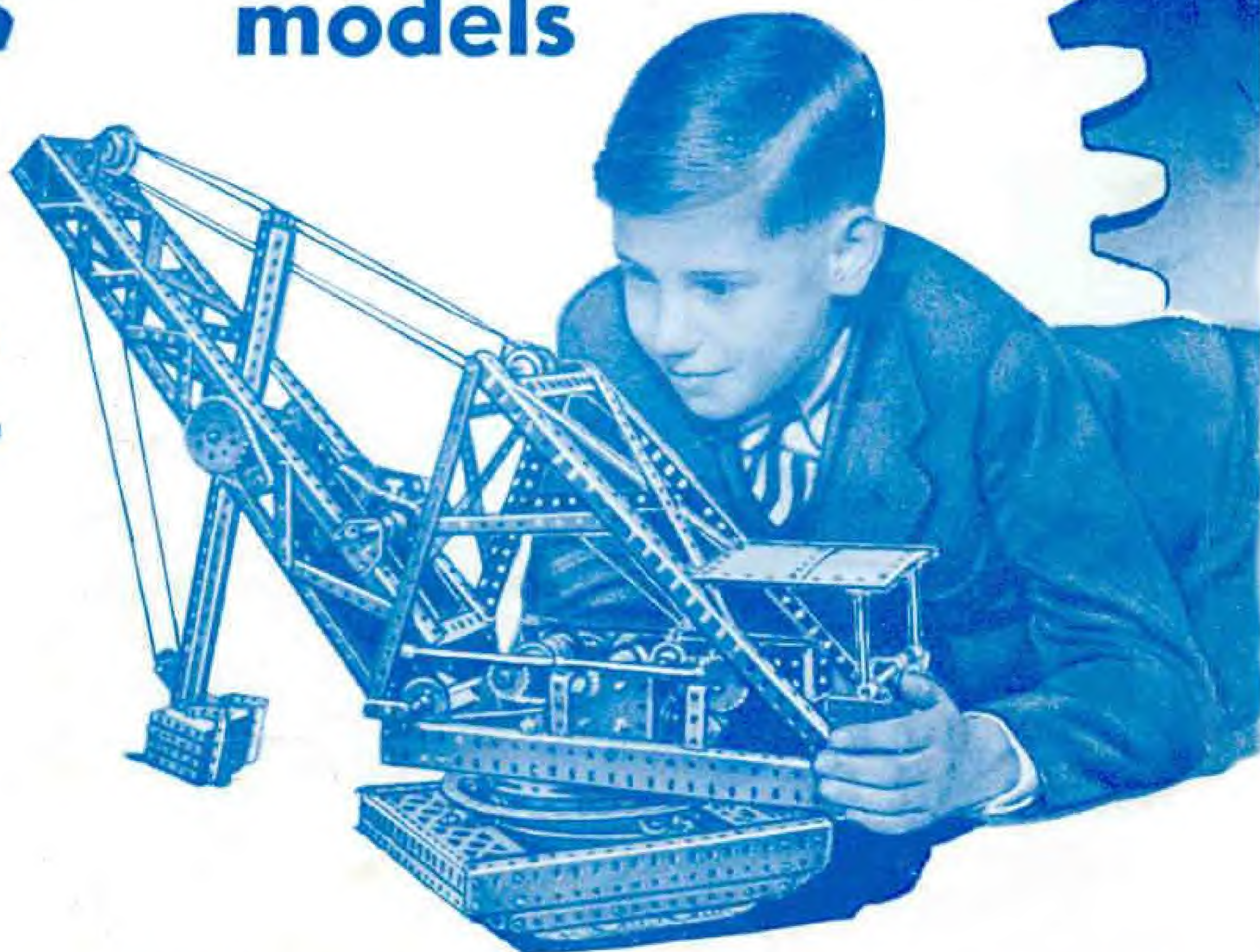


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